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Evaluation of Economic Performance of a Corporation

Zhodnocení ekonomické výkonnosti společnosti

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Annexes

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I declare that the submitted diploma thesis is my own work and does not involve any plagiarism or teamwork.

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Contents

1. Introduction

The goal of the thesis is to evaluate financial and economic performance of Daimler Group Corporation in given time period. The thesis consists of three main chapters where first focuses on theoretical background of chosen performance indicators, second is devoted to methodology and Daimler's description, and fourth final part includes practical financial statement analysis, modern approaches evaluation, pyramidal decomposition of EVA, comparison of Daimler with two main competitors, and final assessment of Daimler.

First, theoretical base is divided into two subchapters while first describes financial statement analysis and second focuses on modern approaches to firm's performance valuation. Financial analysis consists of liquidity, profitability, activity and financial leverage measures. Furthermore, there are two bankruptcy models added in this section. Modern approaches evaluation theoretically elaborates economic valued added (EVA) entity, market value added (MVA), and market value ratios such as price to earnings, price to cash flow, and price to book ratios. Decomposition of EVA equity is also included in the section as well as the introduction of TOPSIS analysis.

Following chapter describes methodology used in the thesis and introduces Daimler Group. Part of the section includes also automotive industry data, Daimler's introduction, Daimler's development of stocks and dividends, organizational structure, strategy of Daimler Group, and SWOT analysis of Daimler Group.

Final part is devoted to the practical analysis of Daimler's financial health. Practical analysis consists of four subchapters that include financial statement analysis, modern approaches of evaluation, decomposition of EVA equity, and the comparison of key indicators with two main competitors Volkswagen Group and Toyota Motors. Comparison of the key indicators contains TOPSIS analysis. Each subchapter is followed by little conclusion that comes out from the prior analyses. All sectional conclusions are summed up in the final assessment.

2. Theoretical background of chosen performance indicators

The goal of the chapter is to draw theoretical background for practical analysis which consists of classic financial statement analysis and modern approach to firm's performance evaluation. Financial statement analysis introduces liquidity, profitability, activity, financial leverage measure tools, Z-score model and credibility indicator index. Modern approach analysis is devoted to economic value added (EVA), market value added (MVA), market value analysis including P/E ratio, price/cash flow ratio, and P/B ratio. The end of this section is devoted to decomposition of EVA equity and technique TOPSIS.

The theory background enables us to make practical analysis later on in the text. It also helps us to better understand individual indicators, their use, advantages or disadvantages, and importance of individual performance elements.

2.1. Financial Statement Analysis

Financial statements and reports appear in company's annual report. *"The quantitative and written materials are equally important. Financial statements report what has actually happened to assets, earnings, dividends, and cash flows during past few years, whereas the written material attempt to explain why the things turned out the way they did"* (Ehrhardt, 2011, p. 49). There are four basic financial statements such as the balance sheet, the statement of stockholders' equity, statement of cash flow, and statement of income.

The ultimate question of the financial statement analysis is how accounting and finance work together and build upon each other. "*Finance generally starts by examining previous accounting statements. Then, financial information is developed based upon conclusions drawn from previous accounting statements before new accounting statements are again used in the financial planning process. Finally, once the financial decisions have been made, accounting tools are used to evaluate the success or failure of those decisions"* (Pyles, 2014, p. 30). Ehrhardt (2011) defines financial analysis as a managers' two-step tool in which, first, there is involved comparison of the firm with industry and, second, evaluation of the trends over time within the firm.

Financial ratios are used for analysis, monitoring and planning purposes. As an analytical tool financial analysis can indicate some of the firm's strengths or weaknesses. By using financial analysis mangers are able to better assess possible risks within the firm's operations and it also helps managers and analysts to plan and estimate for the future. The most important concepts of

the financial health, which are usually being looked at, are liquidity, profitability, activity, and leverage measures. By adding two bankruptcy models we are seeking to evaluate company's likelihood to go bankrupt. These are Altman's Z-score and credibility indicator index.

These four areas will enable to evaluate company's performance. Liquidity helps us to determine firm's ability to pay off its debts. Profitability and activity show how well the company performs and whether the use of assets is efficient enough. Finally, leverage measures provide us with information about actual debt and leverage use. Two bankruptcy models show us how likely it is for the firm to default.

2.1.1. Liquidity

"*Liquidity or short-term solvency uses ratios and measures to determine company's ability to meet recurring financial obligations*" (Ross, 2002, p. 33). If a firm has sufficient cash flow, then it is capable of paying back its obligations to the creditors and therefore is safe against the default. Liquidity is also closely associated with the net working capital where:

Net working capital

Current assets figure says how much short-term property the firm disposes with such as receivables, inventories, marketable securities, cash-flow and other financial assets. Current liabilities, on the other hand signify total debts that are due within one year from the date of the balance sheet. The net working capital should be positive and as high as possible. The equation can be described as follows:

$$Net\ working\ capital = Total\ current\ assets - Total\ current\ liabilities. \quad (2.1.1)$$

Current ratio

Many resources suggest similar version of the current ratio calculation (Dluhošová, 2014, p. 81):

$$Current\ ratio = \frac{Total\ current\ assets}{Total\ current\ liabilities}. \quad (2.1.2)$$

The current ratio or in other words working capital ratio shows company's ability to pay its short-term debts such as salaries, bills, and expenses on time. The ratio less than 1 usually indicates solvency problems. These can cause company to be rejected for the future loans by financial institutions and therefore firm's future growth can be in jeopardy. Very high ratios can, however, indicate inefficiency. Extra cash could be invested somewhere else in the corporation or too much

of inventory could lower profitability of the firm. Ratio between 1.5 and 2.5 is considered as reasonable number (Dluhošová, 2010, p. 83). It is also important to maintain current ratio stable without any rapid changes.

The major weakness of the current ratio is assumption that all current assets can be in very short time transferred into cash. Some of the older inventories can become obsolete and therefore unsaleable. Timing of cash flow is not taken into account by current ratio and thus the ratio can be easily manipulated by postponing some of the purchases.

Acid Test Ratio

Dluhošová (2014) defines the acid test ratio or quick ratio as a fraction of current assets less inventories and current liabilities see formula 2.1.3 below. Company should be capable of paying its short term debts without selling inventories.

$$Acid\ Test\ Ratio = \frac{Current\ assets - inventory}{Total\ current\ liabilities}. \quad (2.1.3)$$

Acid Test Ratio uses most liquid assets only such as cash, marketable securities, and net trade receivables. Recommended values vary based on the industry, financial management strategy and so on. Quick ratio around 1 is acceptable globally, however in some industries where inventory plays important role the ratio can drop to 0.3 – 0.5. Acid test ratio should be rising in time.

2.1.2. Profitability

Profitability in general is a firm's ability to value embedded resources and create new. Profitability ratios use some of the profits such as earnings after taxes (EAT), earnings before interest and taxes (EBIT), and earnings before taxes (EBT). All profitability ratios have in common fact they determine how much units of profit are accrued in denominator. In practice it is being used all kinds of modifications of profitability ratios, for example return on equity (ROE), return on assets (ROA), return on investment (ROI) and return on capital employed (ROCE). The problem with ratios is they do not provide us with benchmark. It is important to compare the measures with either industry average or market leader to determine whether the firm makes sufficient profits.

Return on Equity (ROE)

ROE is net income (EAT) divided by average stockholder's equity, equation 2.1.4 below. The ratio is defined as productiveness of firm's equity and in other words *"it assesses the absolute return delivered to stakeholders"* (Walsh, 2003, p. 62).

$$Return\ on\ Equity\ (ROE) = \frac{Earnings\ after\ Taxes}{Average\ Stockholder's\ Equity}. \quad (2.1.4)$$

Possible ways to increase ROE are first to increase net income, second to decrease an interest rate of company's debts, and third to decrease a portion of equity to total capital or combination of previous options. Advantage of the model is that firm's managers or analysts are able to find connection between individual financial values by using simple math operations in so called Du Pont decomposition. Walsh (2003) also emphasizes the importance of this figure in business finance. According to him a good figure brings success to the business, resulting in high share price and making it easy to attract new funds. Furthermore, Walsh (2003) argues that healthy and prospering company's ROE should equal to 27.5% which is standard based on the biggest US companies. Big corporations in European Union, however, reach approximately 12%.

Return on Assets (ROA)

The ratio is considered a key measurement. It is calculated as profits to total assets and it does not consider origin of funds (equity or debt). Net ROA and gross ROA differ from each other in numerator. Net ROA is calculated as a fraction of net income (EAT) to average total assets, while gross ROA is calculated as a fraction of earnings before interest and taxes (EBIT) divided by average total assets.

$$Net\ return\ on\ assets\ (ROA - net) = \frac{Earnings\ after\ taxes}{Average\ total\ assets}. \quad (2.1.5)$$

$$Gross\ return\ on\ assets\ (ROA - gross) = \frac{Earnings\ before\ interest\ and\ taxes}{Average\ total\ assets}. \quad (2.1.6)$$

Firms can add to ROA ratio by increasing profit margins or asset turnover. However, firms constantly face trade-off between increasing either asset turnover or profit margins. In retail trade Ross (2002) compares *L. L. Bean* that have low profit margins and high asset turnover with high-end jewellery company such as *Tiffany* that have high profit margins and low asset turnover. Very

interesting aspect of ROA ratio is its possible decomposition which is referred to Du Pont system of financial control, equation (2.1.7).

$$ROA = Profit\ margin \times Asset\ turnover = \\ = \frac{Net\ income}{Total\ operating\ revenue} \times \\ \times \frac{Total\ operating\ revenue}{Average\ total\ assets}. \quad (2.1.7)$$

Return on Capital Employed (ROCE)

This ratio measures firm's ability to create new resources and obtain profit by using long-term financing. It is calculated as a fraction of EBIT to Stockholder's equity plus long-term debts, equation 2.1.8.

$$ROCE = \frac{EBIT}{Stockholders'equity + long - term\ debts}. \quad (2.1.8)$$

2.1.3. Activity (Efficiency)

Activity is field of a financial analysis that shows how effectively company uses its resources. Some of the most important activity ratios are asset turnover, receivables turnover, inventory turnover and payables turnover.

Total asset turnover

Asset turnover tells us what amount of sales is generated by one dollar of assets. The higher number the more effective corporation is. The ratio is determined by dividing total operating revenues by the average of total assets (2.1.9)

$$Asset\ turnover = \frac{Total\ revenues}{Total\ average\ assets}. \quad (2.1.9)$$

If the number is high the firm uses effectively its assets, however if the number is low the firm is not using its assets to its capacities and should be therefore increasing sales or dispose some assets. In general, manufacturing firms use much larger investments in fixed assets than for example wholesale or retail firms.

Inventory turnover and days in inventory

It is calculated by dividing the cost of goods sold by average inventory (2.1.10). Days in inventory (DII) are on the other hand being computed as a fraction of days in period which equals to 365 in numerator to inventory turnover in denominator, formula 2.1.11.

$$Inventory\ turnover = \frac{Cost\ of\ goods\ sold}{Average\ inventory}, \tag{2.1.10}$$

$$Days\ in\ inventory\ (DII) = \frac{Days\ in\ period\ (365)}{Inventory\ turnover}. \tag{2.1.11}$$

These ratios determine how fast the inventory is produced and sold. DII measures how long it takes firm to get from the manufacturing point to the selling point in average. Big variable is definitely type of product being manufactured. Loaf of bread will take much less time to produce than electric turbine engine. It is important to keep the level of days in inventory at reasonable and low level (Ross, 2002).

Receivables turnover and days sale outstanding

The ratio determines how many days it takes the firm to collect money from point of selling the product to point of cash inflow from their customers. Receivables turnover is calculated as a portion of total operating revenues to average receivables, see formula 2.1.12. Furthermore, average collection period or day sales outstanding are calculated as fraction of days in period (365) to receivables turnover (2.1.13): Firm usually strives to lower the average collection period.

$$Receivables\ turnover = \frac{Total\ operating\ revenues}{Average\ receivables}, \tag{2.1.12}$$

$$Average\ collection\ period\ (Days\ sales\ outstanding - DSO) = \frac{Days\ in\ period}{Receivables\ turnover}. \tag{2.1.13}$$

Payables turnover and days payable outstanding

These ratios show how much time the firm needs to pay to its suppliers. It provides the firm or the analysts with the information about time from point of delivering the material, part or semi product to point of paying to its suppliers. According to Dluhošová (2014) companies should strive to stabilize this ratio.

$$Payables\ turnover = \frac{Total\ operating\ revenues}{Average\ payables}, \tag{2.1.14}$$

$$Days\ payable\ outstanding\ (DPO) = \frac{Days\ in\ period}{Payables\ turnover}. . \tag{2.1.15}$$

Golden rule of every business is to keep cash on the hand. By comparing DSO and DPO the firm can keep track of cash inflow and cash outflow. The rule is that day sales outstanding ratio should always be lower than day payables outstanding ratio because companies want to dispose with the cash from customers to pay to the suppliers without taking any short term loans.

2.1.4. Financial leverage measures

Financial leverage measures define the proportion of debt in the capital structure. In general, too much debt can cause the company to face insolvency issues. The ratios determine how likely it is for the firm to default on its debt contracts. Contrary, debt is cheaper way of financing and provides company with a tax advantage because interest is a tax deductible whereas equity financing is not. Optimal capital structure varies from industry to industry. Basic rule says that firm should minimalize costs of capital. Some of the important financial leverage measures are debt ratio and interest coverage.

Debt Ratio

Debt ratio is computed by dividing total debt by total assets (2.1.16). The ratio affects creditor risk as well as profitability of the firm. The figure has impact on firm's ability to obtain additional debt financing moreover it is important for long-term creditors such as banks or other financial institutions.

$$Debt\ ratio = \frac{Total\ debt}{Total\ assets}. \tag{2.1.16}$$

Valach (2011) suggests optimal capital structure between 30 and 70%. Some of the problems with debt ratio are that accounting debt worth may differ from market value.

Interest Coverage

The interest coverage or times interest earned measures a firm's ability to earn enough operating income to cover its annual interest requirement and reflects overall riskiness. It is calculated by dividing earnings before income and taxes (EBIT) by interest expense (2.1.17).

$$Interest\ coverage = \frac{Earnings\ before\ interest\ and\ taxes}{Interest\ expense}. \tag{2.1.17}$$

Large debt does not have to be problem if the firm makes enough money to cover its interest expenses. Ross (2002) argues the higher ratio is the more debt capacity firm has. Company with predictable cash flow is also better regarding debt capacity than company with high though uncertain cash flow.

2.1.5. Z-score model

Edward I. Altman is an author of so called Z-score model which is trying to predict whether the company is likely to go into bankruptcy within two years. Model is using some of the values taken from income statements and balance sheet to evaluate financial health of the company. Altman revised its first version of the model. See below original and revised version (Altman, 2000, p. 13 and p. 25):

$$Z = 1.2(X1) + 1.4(X2) + 3.3(X3) + 0.6(X4) + 1.0(X5), \quad (2.1.18)$$

$$Z' = 0.717(X1) + 0.847(X2) + 3.107(X3) + 0.420(X4) + 0.998(X5). \quad (2.1.19)$$

In the formula above X1 stands for fraction of working capital to total assets, X2 means fraction of retained earnings to total assets, X3 divides earnings before interest and taxes by total assets, X4 is calculated as a fraction of market value of equity to book value of total liabilities and X5 is calculated as total revenues divided by total assets.

It is important to emphasize that the model well fits only small, middle and middle-large sized companies. Very large companies do not go into bankruptcy unless something really unpredictable happens. Depending on Z-score the firm's likelihood of bankruptcy can be determined. If the Z-score is fewer than 1.2 the firm is very likely to be facing financial distress, Z-score ranges between 1.2 and 2.9 it is so called grey zone and if the Z-score is greater than 2.9 the firm is financially healthy.

2.1.6. Credibility indicator index

Credibility indicator index is defined as a comprehensive view on a financial-economic situation and performance of an entity with the purpose of providing information regarding the entity's financial health. It is calculated as a sum of six different variables where each has its own system of calculation (Sedláček, 2001, p. 128).

$$Credibility\ indicator\ index = \\ = 1{,}5 \times X1 + 0{,}08 \times X2 + 10 \times X3 + 5 \times X4 + 0{,}3 \\ \times X5 + 0{,}1 \times X6. \quad (2.1.20)$$

Formula above can be explained as following: X1 stands for change in cash flow divided by total liabilities, X2 is total assets divided by total liabilities, X3 stands for fraction of earnings before interest and taxes (EBIT) to total assets, X4 is EBIT divided by total revenues, X5 calculates inventories divided by total revenues and X6 equals to total revenues divided by total assets.

The model is being used especially in German speaking countries. Firm's financial health and performance grows with the value of the credibility indicator index, table 2.1. Firm should strive to have the index at least greater than one.

Table 2.1: Values of the credibility indicator index

Value of the indicator	Evaluation of the firm
Less than 2	Extremely bad financial conditions
Between -2 and -1	Very bad financial conditions
Between -1 and 0	Firm in bad financial conditions
Between 0 and 1	Firm with financial problems
Between 1 and 2	Good financial situation
Between 2 and 3	Very good financial situation
Greater than 3	Extremely financially healthy firm

Source: own elaboration based on Sedláček (2001)

2.2 Modern methods for evaluating firm's performance

This chapter is devoted to modern approaches to valuation of firm's performance. By using methods such as economic value added (EVA), market value added (MVA), cash flow, and P/E ratio we are able to evaluate how well company performs throughout given time period and what aspects can be improved by focusing on maximizing firm's stock price.

2.2.1. Economic Value Added

Economic value added (EVA) is modern approach to estimation firm's economic profit. The author of the method is Stern Stewart who came up with idea of measuring value that the firm is adding in 1990. In fact, EVA determines to which extent the corporation contributed with its activities to either increase or decrease of value for its stockholders. It is basically difference between profit from operating activities and cost of capital. EVA is calculated as net operating profit after taxes (NOPAT) less capital charge which can be calculated by multiplying net operating assets (NOA) and weighted average costs of capital (WACC), equation below. We compute EVA in 4 following steps (McClure, Investopedia):

- to determine WACC by using different assumptions,
- to calculate NOPAT,
- to calculate NOA,
- and to compute EVA based on previous three steps for each year.

Weighted Average Cost of Capital (WACC)

WACC is the firm's cost of capital in other words it is weighted average cost of debt and the cost of equity. As mentioned earlier the cost of debt is considered after taxes because interest expenses are tax deductible:

$$WACC = \frac{MV_e}{MV_e + MV_d} \times R_e + \frac{MV_d}{MV_e + MV_d} \times R_d \times (1 - t). \quad (2.2.1)$$

In formula 2.2.1 MV_e stands for market value of equity, MV_d represents market value of debt, R_e stands for cost of equity, R_d is cost of debt and t is a tax rate.

WACC is affected by both cost of equity and average cost of debt. Capital structure of the firm also significantly influences final WACC. To calculate WACC there will be two approaches. First, own calculations of cost of equity (R_e) and cost of debt (R_d) will be used and second data provided

in financial statements and annual reports will be used. To determine cost of equity the Capital Asset Pricing Model (CAPM) will be used.

Capital Asset Pricing Model

CAPM is used to come up with cost of equity of the firm. It is calculated as followed:

$$Cost\ of\ Equity\ (R_e) = \\ = Risk\ free\ rate + \beta \times (Market\ risk\ premium \\ - Risk\ free\ rate). \tag{2.2.2}$$

The risk-free rate is basically return on investment with zero risk. In fact, the risk- free rate does not exist because every economy can at some point go bankruptcy. However, for the risk-free rate we are going to assume Germany Government 10-year Bond since the corporation being evaluated is having headquarters in Germany. As of February 2, 2016 the yield of German government bond equals to 0.26% based on Trading Economics website (2016). Market risk premium was retrieved from country default spreads and risk premiums updated in January 2016 by Damodaran (2015). Every country has its own default spread and risk premiums for example, table 2.2 below:

Table 2.2 Country default spreads and risk premiums of chosen countries

Country	Default spreads	Risk premiums
Germany	6.00%	6.00%
United States of America	6.00%	6.00%
France	6.74%	6.28%
United Kingdom	6.59%	6.04%
China	6.90%	7.65%
Japan	7.05%	6.73%
Czech Republic	7.05%	6.73%

Source**:** *(own elaboration based on Damodaran (2015)*

Beta

In order to calculate *Beta,* we need to gather data about development of market data prices and prices of given stock. First step is to gather monthly market quotations (S&P 500) for the chosen time period and we do the same for the chosen stock as well. Here we have thread of prices. For the market price and also for the stock prices we compute % change from one month to another by using natural logarithm, see equations below.

$$Return\ of\ market\ prices\ (S\&P\ 500)(\%) = \ln\left(\frac{Market\ price_{\ t0}}{Market\ price_{\ t+1}}\right), \tag{2.2.3}$$

$$Return\ of\ stock\ price\ (\%) = \ln(\frac{Stock\ price_{\ t0}}{Stock\ price_{\ t0+1}}). \tag{2.2.4}$$

Here we come up with series of percentage changes in market prices and prices of stock as well. To calculate Beta, we just need to use function SLOPE in excel where for y we appoint percentage change of stock prices and for x we appoint market prices based on Mcculty (2015).

$$Beta\ (\beta) = \\ = \frac{COVAR(Return\ of\ stock\ prices\ in\ \%,\ Return\ of\ market\ prices\ in\ \%}{VAR(Return\ of\ market\ prices\ in\ \%)}. \tag{2.2.5}$$

When two risky assets (in our case market prices and stock prices) move in tandem together it is positive covariance, however, negative covariance means inverse moves. Variance determines variability (volatility) from the mean which measures risk.

The final Beta determines whether fluctuations in prices are greater than fluctuations on the market. Beta > 1 indicates greater fluctuations and beta < 1 indicates fewer fluctuations. To our calculation in excel we add so called R- squared which gives us idea about reliability of the beta. Closer the R-squared is to 1 the more reliable it is. It is calculated as follows:

$$R\ squared = \\ = RSQ(Return\ of\ index\ S\&P\ 500\ in\ \%, Return\ of\ stock\ prices\ in\ \%). \tag{2.2.6}$$

Cost of Debt

The cost of debt is calculated by dividing annual interest expense by total firm's debt which is summation of short-term and long-term debt. The calculation provides us with approximate assumption which however showed to be pretty accurate compared to official annual reports data.

$$Cost\ of\ Debt = \frac{Interest\ expense}{Short\ term\ debt + Long\ term\ debt}. \tag{2.2.7}$$

Market Value of Equity (MV_e)

MV_e or in other words market capitalization of the firm is calculated as multiplication of total number of shares outstanding and share price at the end of given year.

$$MV\ of\ equity = \#\ of\ shares\ outstanding \\ \times stock\ price\ at\ the\ end\ of\ time\ period. \tag{2.2.8}$$

Market Value of Debt (MV_d)

For market value of debt, we assume that whole debt has one cost of debt which will be in our case the same one as cost of debt (R_d). The formula to be used looks like this: where t equals to maturity of the debt.

$$Estimated\ MV\ of\ debt = \\ = Interest\ expense \times \left(\frac{1 - \frac{1}{(1+R_d)^t}}{R_d} \right) + \frac{Total\ debt}{(1+R_d)^t}. \quad (2.2.9)$$

Net Operating Profit after Taxes (NOPAT)

NOPAT signifies profit of the firm from all operating activities. Evans (2010) suggests NOPAT to be calculated as multiplication of sales less costs of goods sold less depreciation and tax shield (1-T).

$$NOPAT = (Total\ sales - Costs\ of\ goods\ sold \\ - Amortization\ and\ depreciation) \times (1 - Income\ tax\ (\mathrm{T})). \quad (2.2.10)$$

According to Brooks (2013) NOPAT is often being used for comparison between the firm and its competitors by analysts and top managers.

Net Operating Assets (NOA)

Net operating assets or also called capital deployed is calculated as a sum of working capital and net fixed assets. It is important to separate financing activities if the firm is not in financing industry. It gives analysts and managers better information about total capital deployed.

$$NOA = Working\ capital + Net\ fixed\ assets. \quad (2.2.11)$$

Brooks (2013) emphasizes the importance of consistency between calculation of NOPAT and NOA.

Economic Value Added (EVA) entity

Finally, we are able to compute EVA after all the steps that needed to be done. We plug in all the numbers into formula below and come up with EVA entity (2.2.12).

$$\boldsymbol{Economic\ value\ added\ (EVA)\ entity = NOPAT - NOA \times WACC}. \quad (2.2.12)$$

The greater the EVA is the greater value firm adds to its shareholders and the better firm performs.

2.2.2. Market Valued Added

Ehrhardt (2011) argues the wealth of shareholders is maximized by efficient allocation of resources and as well by maximizing the difference between the market value of the corporation's stock and the amount of equity that was delivered by shareholders. MVA is calculated as a difference between market value of stock less equity capital supplied by shareholders, formula 2.2.13.

$$Market\ Value\ Added = (Shares\ outstanding) \times (Stock\ price) - Total\ common\ equity. \tag{2.2.13}$$

The greater MVA is the better firm performs and better job management is doing. Market value added depends more on estimated future performance rather than on past data. MVA needs to be used for the entire corporation not like EVA which can be used for separate business units of a large firm.

2.2.3. Market Value Ratios

Ehrhardt (2011) defines market value ratios as tools to evaluate firm's stock price relative to its earnings, cash flows, and book value per share. It is a great tool to measure firm's stock performance considering other competitors. We are looking at price/earnings ratio, price/ cash flow ratio, and market/book ratio.

Price/Earnings (P/E) Ratio

"The price to earnings (P/E) ratio shows how much investors are willing to pay per dollar of reported profits" (Ehrhardt, 2011, p. 100). It is calculated as a price per share divided by earnings per share, formula (2.2.14). In other words, P/E ratio could be interpreted as multiple therefore how much money investor is willing to pay for one dollar of earnings per share. Higher numbers usually mean higher growth expectations and lower ratios mean opposite. It is very important to look at the sector because the ratios significantly differ. For example, telecommunication and energy companies have very high P/E which can confuse and mislead potential investors that it is great investment whilst it is not reliable assumption.

$$Price\ to\ earnings\ \left(\frac{P}{E}\right) ratio = \frac{Price\ per\ share}{Earnings\ per\ share}. \tag{2.2.14}$$

Price/Cash Flow Ratio

Every firm's performance is closely related to the ability to create cash flow. There are more approaches to calculate cash flow but we assume that cash flow is calculated simply as net income

plus depreciation and amortization. Here it is appropriate to compare the data with industry average such as data for S/P 500 or data from automotive industry. The price to cash flow ratio is calculated as price per share divided by cash flow per share, see formula 2.2.15. Based on many analysts the P/CF ratio is great tool to evaluate firm's long term returns.

$$Price\ to\ cash\ flow\ ratio = \frac{Price\ per\ share}{Cash\ flow\ per\ share}. \tag{2.2.15}$$

Market/Book Ratio

Market to book (M/B) ratio is another indicator of how investors see the company. In order to calculate M/B ratio we need to compute a book value per share first which is basically fraction of common equity to shares outstanding. Companies with high ROE dispose generally with higher M/B ratios than those with lower ROE.

$$Book\ value\ per\ share = \frac{Common\ equity}{Shares\ outstanding}. \tag{2.2.16}$$

Than we just divide market price per share by book value per share and get M/B ratio, formula 2.2.17. Market to book ratio significantly differs from industry to industry. Industries with more infrastructure and capital will usually stand at lower ratios than for example consulting firms. The ratio gives the investor idea of how much he is paying for the stock if the company would have defaulted right now.

$$Market\ to\ book\ \left(\frac{M}{B}\right)\ ratio = \frac{Market\ price\ per\ share}{Book\ value\ per\ share}. \tag{2.2.17}$$

2.3. Decomposition of EVA equity

EVA equity differs from the EVA entity that was introduced earlier in the thesis. The most significant change is that EVA equity is model based on firm's accounting whereas EVA entity is economical model that is much more complex. EVA equity takes into account only cost of equity. To find out components with the highest influence on total EVA equity it is used decomposition of EVA equity. The goal of the EVA decomposition is to decompose each component step by step from the major indicator, thus EVA. The method enables managers, and analysts to better understand what is happening inside of the company. Formula (2.3.1) represents starting point for the decomposition where (ROE- R_E) is called *value spread* from which R_E is cost of equity and E represents stockholder's equity. Final decomposition of EVA equity looks like following formula (2.3.1). ROE is further decomposed as follows (2.3.2).

$$EVA\ equity = (ROE - R_E) \times E \tag{2.3.1}$$

$$ROE = (\frac{EAT}{EBIT}) \times (\frac{EBIT}{Rev}) \times (\frac{Rev}{A}) \times (\frac{A}{E}) \tag{2.3.2}$$

For decomposition and quantification of the influence we can use two methods regarding of change of the indicator between the years:

a) absolute: $\Delta X=X_1-X_0$

b) relative $\Delta X=(X_1-X_0)/X_0$,

where ΔX represents the change of analysed component, X_1 is indicator in time 1 and X_0 is indicator in time 0. In the pyramidal decompositions there are usually two ways to link indicators:

a) additive connection (X= a+ b+ c+ …+ n)

b) multiplicative link (X= a× b× c× …× n)

There are four multiplicative methods for the decomposition: method of gradual changes, decomposition method with remainder, logarithmic method and functional method. Change of EVA equity is always expressed as total sum of partial influences.

Functional method

The method assigns the change of the indicator ΔX to the individual analytical components by division. For the multiplication of two partial components we use formulas (2.3.3) and (2.3.4):

$\Delta X = \Delta X_a + \Delta X_b$,

$$\Delta X_a = \frac{1}{R_x} \times R_a \left(1 + \frac{1}{2} R_b\right) \Delta y_x. \tag{2.3.3}$$

$$\Delta X_b = \frac{1}{R_x} \times R_b \left(1 + \frac{1}{2} R_a\right) \Delta y_x \tag{2.3.4}$$

where R represents discrete return.

In case of multiplication between components the discrete return is calculated as shown below (2.3.5):

$$R_a = \frac{a_1}{a_0} - 1 \tag{2.3.5}$$

However, if the operation consists of division than the discrete return is calculated as shown in formula (2.3.6)

$$R_b = \frac{b_0}{b_1} - 1 \tag{2.3.6}$$

For multiplication of three components the formulas look as followed:

$\Delta X = \Delta X_a + \Delta X_b + \Delta X_c$

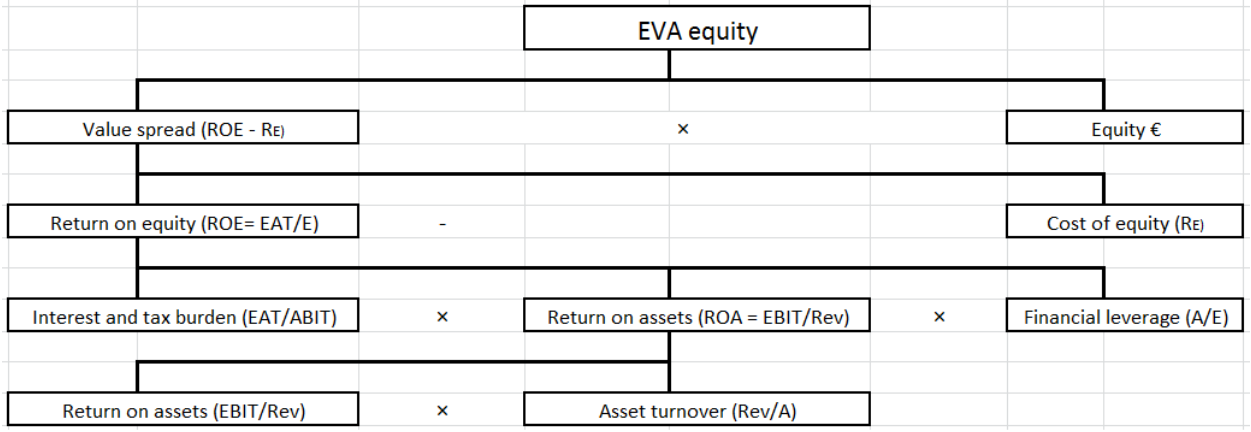
$$\Delta X_a = \frac{1}{R_x} \times R_a \left(1 + \frac{1}{2} R_b + \frac{1}{2} R_c + \frac{1}{3} R_b R_c\right) \Delta y_x, \tag{2.3.7}$$

$$\Delta X_b = \frac{1}{R_x} \times R_b \left(1 + \frac{1}{2} R_a + \frac{1}{2} R_c + \frac{1}{3} R_a R_c\right) \Delta y_x, \tag{2.3.8}$$

$$\Delta X_c = \frac{1}{R_x} \times R_c \left(1 + \frac{1}{2} R_a + \frac{1}{2} R_b + \frac{1}{3} R_a R_b\right) \Delta y_x. \tag{2.3.9}$$

Formulas for multiplication of more than three indicators will not be necessary for this thesis. Following figure 2.1 demonstrates decomposition of EVA (equity) based on value spread (Dluhošová, 2014, p. 104).

Figure 2.1: Diagram of EVA equity decomposition



Source: own elaboration based on Dluhošová (2014)

2.4. Technique TOPSIS

TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) was designed by authors Hwang and Yoon (Tzeng and Huang, 2011, p. 69). It basically ranks different variations based on distance from ideal and basal variation. First we transfer minimized criteria to maximized by using formula (2.4.1)

$$r_{ij} = \frac{\theta_{ij}}{\left[\left(\sum_i \theta_{ij}^2\right)\right]^{1/2}} \quad i = 1,...,m; \;\; j = 1,...,k \qquad (2.4.1)$$

.

In next step we construct so called normalized matrix R. Column matrix R contains vectors of unit lengths. After that we calculate weighted criterial matrix Q by using formula (2.4.2)

$$q_{ij} = \lambda_j r_{ij} \quad i = 1,2,...,m; \;\; j = 1,2,...,k \qquad (2.4.2)$$

,

where λ_j is relative weight of j attribute; $\lambda_j \geq 0$ and $\sum \lambda_j = 1$.

In following step, we determine ideal and basal variations considering values of matrix Q, which is (2.4.3):

$$q_j^* = \max_i q_{ij} \;, \qquad q_{*j} = \min_i q_{ij} \;. \qquad (2.4.3)$$

Then it is necessary to compute distance of variations from ideal and basal variation using formula (2.4.4).

$$P_i^* = \left[\sum \left(q_{ij} - q_j^* \right)^2 \right]^{1/2}, \ i = 1,2,...,m \ ,$$
$$P_{*i} = \left[\sum \left(q_{ij} - q_{*j} \right)^2 \right]^{1/2}, \ i = 1,2,...,m \ . \tag{2.4.4}$$

Values of P range between 0 and 1. Close variants are equalled to 0 for basal and 1 for ideal variation. Variations are ranked downward based on value of relative indicators of distance. Last step is calculation of relative indicators of distances between basal and ideal variations based on formula (2.4.5)

$$D_i = \frac{P_{*i}}{\left(P_i^* + P_{*i} \right)}, \ i = 1,2,...,m \tag{2.4.5}$$

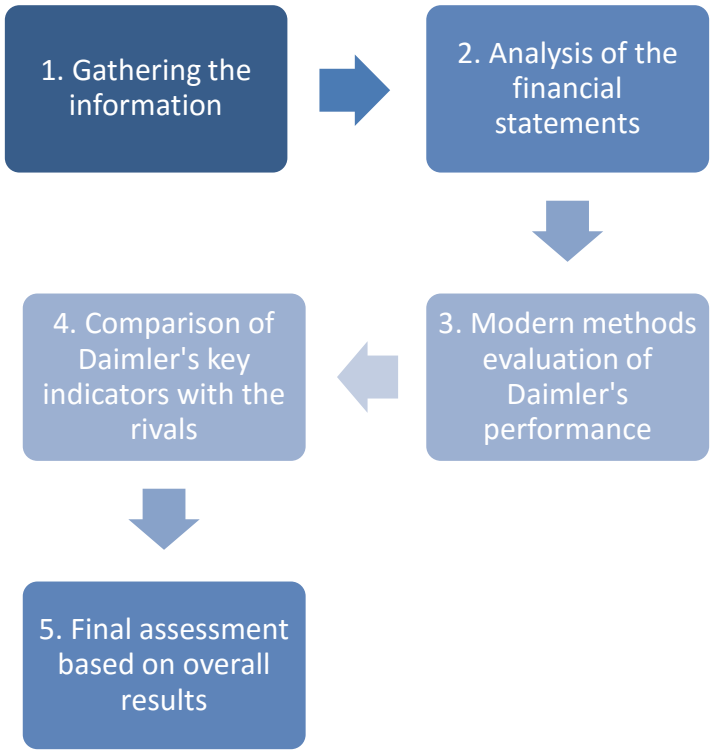
.

3. Methodological approach and description of the company

3.1. Methodological approach

The thesis completion takes place in five major phases, figure 3.1. In the first phase we gather all relevant information. In this phase we create information base for company Daimler Group (annual reports 2006 – 2014), automotive industry data, competitors' financials data and theoretical concepts from different literature and internet resources. In the second phase we apply theoretical concepts to calculate and evaluate financial statement analysis. Third phase is devoted to application of modern methods in Daimler Group such as calculating EVA entity, MVA, P/E ratio, decomposition of EVA equity, etc. Fourth phase compares and contrasts Daimler Group with two biggest rivals – Volkswagen Group and Toyota Motors by using traditional ranking system and modern multiple-criterion method TOPSIS. Last and fifth phase contains summary of all conducted analyses and recommendations for Daimler.

Figure 3.1: Process of creating diploma thesis



Source: own elaboration

3.2. Description of Daimler Group

In this part we look at automotive industry from point of view of Daimler Group. Detailed introduction of Daimler follows. Next section describes development of Daimler's shares and its dividends. Next part talks about Daimler's long run strategy and its organizational structure. Final part explains Daimler's strengths, weaknesses, opportunities and threats by using SWOT analysis.

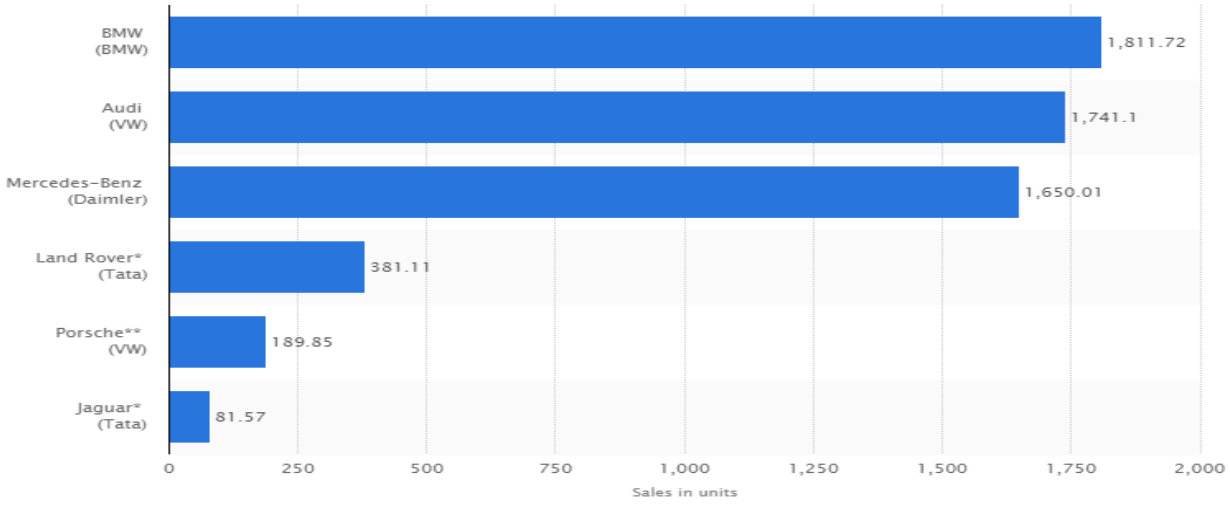
3.2.1. Automotive industry

In the case of Daimler, we mainly focus on the luxury car segment where Daimler is one of the biggest contributors in the global luxury markets. The rising demand for luxury cars is driven by emerging markets such as Brazil, India, the Middle East, and China. The luxury car segment went up by 10% and reached around 350 billion euros in 2014 based on webpage Statista (2016).

Global environmental and technical trends have also impact on the industry. It is expected that companies from the automotive industry will more focus on environmentally conscious group of buyers which will lead to producing eco-friendlier luxury cars. Furthermore, high end automobiles are expected to attract customers seeking to combine connectivity with ergonomics. (Daimler's annual report 2014)

The leader in luxury car segment for 2014 was BMW which sold 1.81 million vehicles, figure 3.2. Audi with 1.74 million cars remained second and Mercedes Benz with 1.65 billion vehicles sold occupied third position. Other individual brands such as Land Rover, Porsche or Jaguar did not even reach sales of 0.4 million cars per year.

Figure 3.2: Luxury car segment in 2014 (million euros)

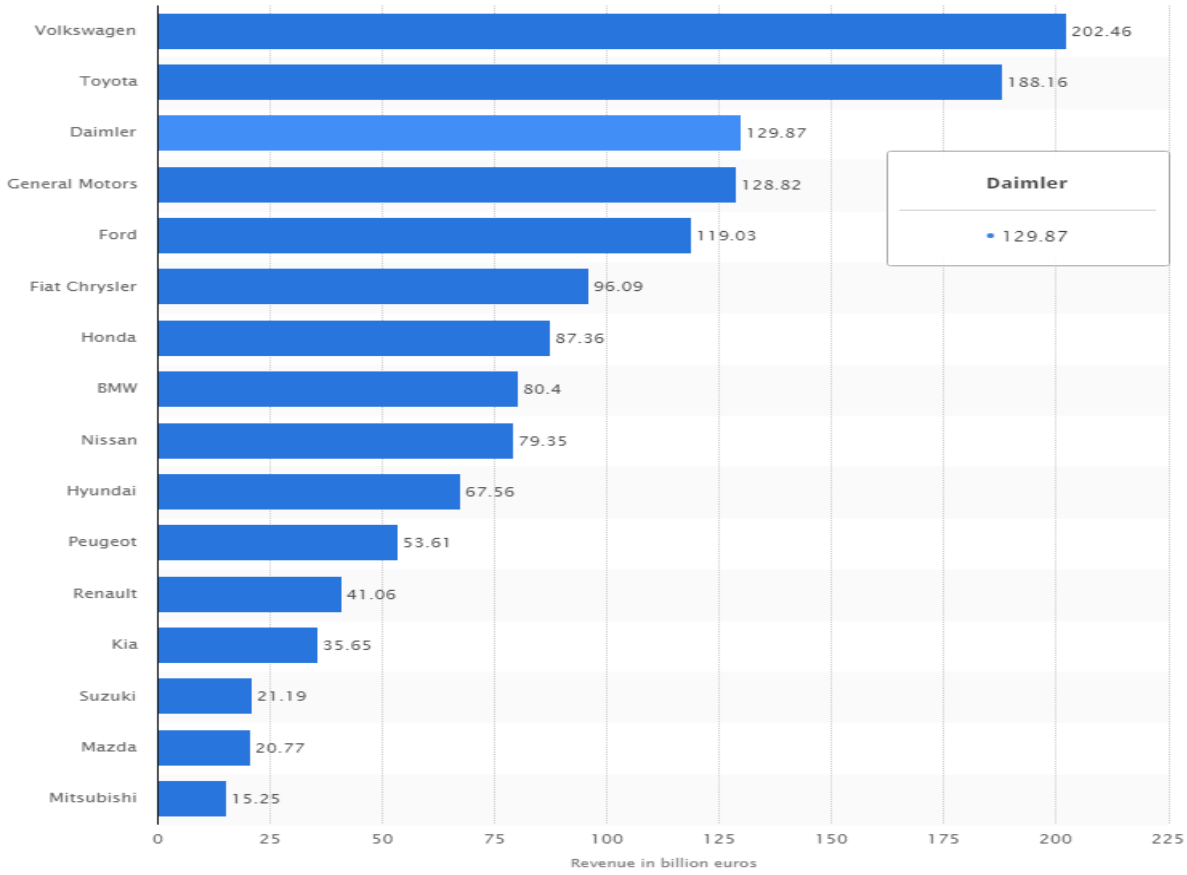


Source: Statista.com (2016)

The next graph (3.3) shows the top car manufacturers based on revenue in fiscal year 2014. The most successful car manufacturers in 2014 were Toyota, Volkswagen, Daimler, and General Motors. Toyota can be proud of stable revenues over the past three years. Volkswagen had been experiencing healthy growth and was able to increase its sales to over 202 billion euros.

Daimler's revenues reached almost 130 billion euros in 2014 which placed the company on the third position behind the biggest competitors - Toyota Motors (188 billion euros) and Volkswagen (€ 202 billion euros).

Figure 3.3: Car manufacturers based on revenue in 2014 (billion euros)



Source: Statista.com (2016)

3.2.2. Daimler's description

The Daimler Group with Headquarters in Stuttgart, Germany is a manufacturer of cars and commercial vehicles. The best known brand of Daimler is Mercedes-Benz. The company is also provider of financial services and supports the motorsports, for example, Formula 1 team Mercedes. Daimler has five divisions, which are **Mercedes-Benz cars, Daimler Trucks, Mercedes-Benz Vans, Daimler Busses, and Daimler Financial Services,** see annex 1. Daimler was the first global company traded on the stock market. The company's shares are quoted on the German stock exchange under the symbol DAI and are part of the DAX at the Frankfurter Stock Exchange. Today's Daimler AG was founded in 1998 as Daimler Chrysler AG after the merger of Daimler Benz AG and U.S. Chrysler Corporation. The renamed Daimler AG took place in 2007 after the sale of a majority stake in Chrysler.

In 2011 Daimler generated turnover of € 106.5 billion and EBIT amounted to 6.3 billion euros. In 2012 the turnover totalled € 114.3 billion and EBIT summed up to € 8.7 billion. The number of employees of Daimler AG amounted to 274,000 worldwide. Total sales grew in 2012 to 2.2 million vehicles, which is by 4% more than in 2011. From 2.2 billion there was 1.45 million of Mercedes-Benz brand cars sold, compared to 2011 – 1.38 million.

Years 2013 and 2014 were for Daimler one of the best years throughout the corporation's history. In 2013 the revenue reached € 118 billion. EBIT from the ongoing business totalled € 7.9 billion. In 2014, the Group sold more than 2.5 million vehicles and employed a workforce of 279,972 people. Total revenues totalled € 129.9 billion which was the new record in Daimler's history and improvement of revenue by 10%. Daimler's EBIT amounted to €10.8 billion. After very good results in previous two years 2011 and 2012 the upcoming years 2013 and 2014 were the record-breaking for Mercedes-Benz Cars. Unit sales, revenue, production volumes and earnings reached all-time highs.

3.2.3. Daimler's shares

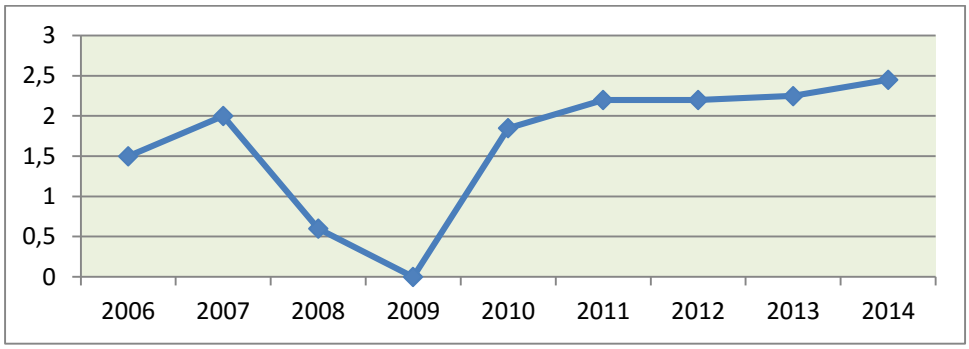
Between time period 2006 and 2014 Daimler's stock market price ranged between € 17.8 and € 78.85 per share. From the figure 3.4 we can see that Daimler was at its highest in the second half of 2007. At the beginning of 2009 Daimler hit absolute bottom due to financial crisis that affected all businesses globally, automobile industry especially. In 2006 Daimler's stocks were traded at € 43.68 per share. At the end of the observed time period - December 2014 Daimler's shares were traded for € 68.97. Market stock price went up by almost 58% in nine observed years. That equals to growth of 6.4% per year.

Figure 3.4: Development of stock market price of Daimler's shares

Source: Daimler (2016), Stock Market Price of Daimler Share

Daimler Group also pays regularly dividends to its stakeholders. From 2006 to 2008 Daimler paid € 1.5, € 2.0, and € 0.6 per share. In 2009 Daimler did not pay anything to its shareholders because of financial crisis that hit the automotive industry, see figure 3.5. From 2010 to 2014 dividends have increased from € 1.85 to € 2.45 due to improved profitability, figure 3.5. Daimler Group distributes approximately 40% of its earnings. There were reported 1.066 billion outstanding shares in average during given time period.

Figure 3.5: Development of Daimler's dividend payments



Source: own elaboration based on annual reports

Overall Daimler seems to be great company to invest in. Compared to competitors Daimler pays regularly dividends to its stakeholders and the market price had grown in time. Following analyses will closely monitor some of the financial indicators and either justify or refute the statement. Some of the analyses will give us idea of whether current stock price shows signs of overvalued or undervalued stock.

3.2.4. Daimler's strategy and organizational structure

Daimler Group focuses on four strategic growth areas. Daimler will further strengthen its core business, grow in new markets, take the lead with "green" technologies, and lead the way with the development of new mobility concepts and services, see figure 3.6.

First, by strengthening its core business Daimler focuses on providing the best quality products, stronger focus on customers' needs, and quality customer service throughout the entire product lifecycle. Daimler strives to extend and renew the product range of Mercedes Benz cars. Daimler Trucks division will build up on its technology leadership. New products and technologies will be implemented at Mercedes-Benz Vans. Efficiency, environmental friendliness, and safety will be built into Daimler Buses division. Second, Daimler is planning on to grow in new markets outside of Europe, North America and Japan such as Brazil, Russia, India, and China. Third, vision of leading in green technologies and safety helps Daimler to stay ahead of the competition. Daimler produces different drive system solutions, combustion engines, hybrid drives, emission free driving solutions, etc. Last, Daimler realizes that digital technologies are changing the world, thus, Daimler is experimenting in area of connectivity and mobility concepts. They heavily expand the range of mobility services for business, private, and public transport solutions.

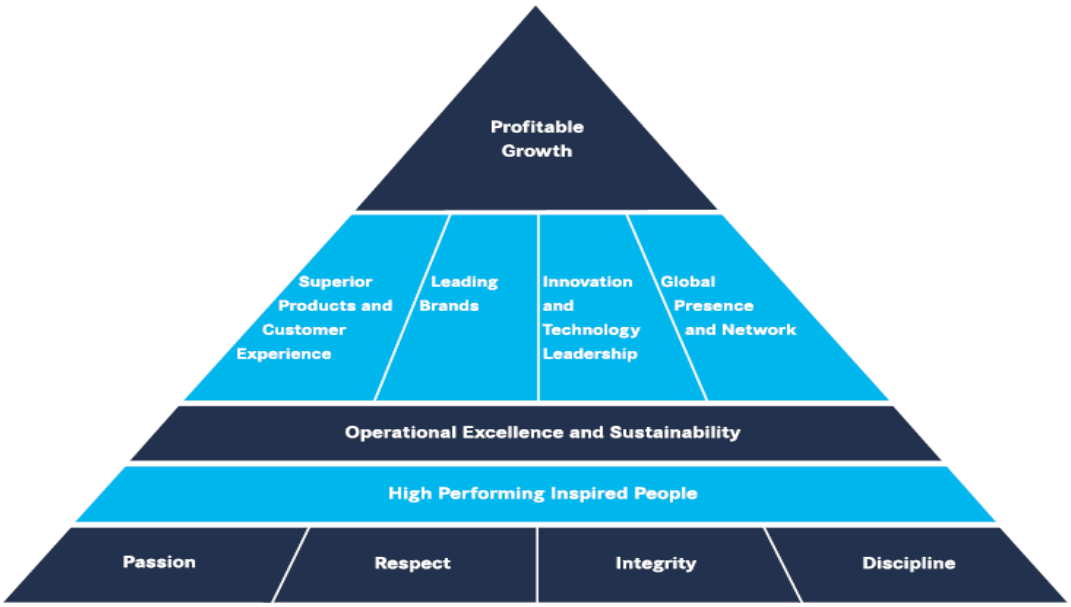
Figure 3.6: The four strategic growth core areas at Daimler

Source: Daimler (2016) Annual Report 2014.

The Chairman and Chief Executive Officer of Daimler Group is Dr. Dieter Zetsche since 2006. His board of directors consists of six further managers. Integrity and Legal Affairs is directed by Renata Jungo Brungger. In charge of Mercedes-Benz Vans is Wilfried Porth, Hubertus Troska is responsible for Greater China. Finance& Controlling under Financial Daimler Services is led by Bodo Uebber. For Group Research and Mercedes-Benz Cars Development is responsible Thomas Weber. The youngest on the team of super executives is Ola Kallenius (45) responsible for

Mercedes-Benz Cars Marketing& Sales. Part of the Daimler's organizational structure is supervisory board that consists of 20 members where ten members are elected by shareholders and ten are elected by employees. Supervisory board watches after the interests of either employees or shareholders. In total Daimler disposes by 342 executives in 44 subsidiaries. The integral part of the Daimler's organization is motivating so called Corporate Goal – target system, figure 3.7 below.

Figure 3.7: Corporate goal – target system



Source: Daimler (2013) Annual Report 2012.

3.2.5. SWOT analysis for Daimler

SWOT is an initialism for strengths, weaknesses, opportunities and threats. Purpose of this method is to plan and identify internal and external factors that affect business performance. In this part we identify Daimler's internal factors such as strengths and weaknesses and external factors such as opportunities and threats. Factors in which Daimler does better than competitors are strengths, and weaknesses are these elements that position business in disadvantage relative to competition. Internal factors can be directly addressed by the company and include for example finance, human resources, management, marketing practices and so. Opportunities are factors in the environment to be exploited to advantage of Daimler, whereas threats are external factors that could harm the business. At the end of each factor there is brief summary of what Daimler should mainly focus on.

Strengths

Strong brand recognition enables Daimler to charge premium prices for its cars, vans, buses, and trucks. Therefore, Daimler beats its competitors as for profit margins which are overall higher. It is Daimler's strategy to provide high end customers with ultimate luxury service.

Daimler also diversifies geographically its production so that sudden downtrend in one region or nation does not affect its overall performance. Company supplies huge markets in North America, Latin America, and Asia. Daimler disposes by 60 production facilities worldwide. Daimler operates in five divisions as mentioned before: Mercedes- Benz cars, Daimler trucks, Mercedes-Benz vans, Daimler buses, and Daimler financial services. Portfolio of Daimler's products is very broad. Under Mercedes-Benz cars Daimler offers classic compact cars of the A- and B- Class to SUVs, coupes, convertibles and to the S-Class luxury sedans. Daimler trucks division manufactures all kinds of light, regular and heavy weight truck for different purposes. In addition to that Daimler through it financial division helps its clients with financial services such as leasing, retail financing, dealer financing, commercial fleet management and insurance solutions. Daimler is also betting on its extensive sales network with 8540 outlets.

Furthermore, Daimler heavily invests in research and development capabilities where experts continuously improve functionality, quality, safety, environmental features of the products. In 2012 and 2013 Company put 11 billion euros on R&D. Main areas of interest for Daimler are now innovative safety technologies, alternative drive systems, new fuel efficient and low- emission engines and so on.

Strengths of the company can be summarized as follows (Marketline, 2015, p. 5- 6):

- business diversification,
- geographical diversification,
- strong performance of Mercedes Benz cars,
- extensive sales network,
- stable and reliable management.

Weaknesses

One of the big setbacks might be possible recalls that negatively affect brand image. In April 2014 Daimler recalled two hundred and eighty-four thousand C-Class sedans in US and Canada due to electric issue. In May 2013 the company recalled 6000 A-Class cars because of faulty passenger

airbags. There were also recalls of some of the trucks. Operating on luxury markets is very much about the brand recognition and recalls have definitely power to harm Daimler and cause losses in sales.

As mentioned earlier in the financial analysis Daimler has high debt ratio. From 2006 Daimler has not got down to less than 70% debt with regard to equity. For example, in 2014 76% of total market value is financed by its debt. Daimler is, thus, forced to make adequate cash flow in order to finance its debt. In case of economy slowdown and company's inability to finance its operations Daimler might face some of the following problems such as selling assets, restructuring and refinancing its debt, and seeking new capital that would lead in poor company performance.

To conclude the most important weaknesses Daimler should deal with are following (Marketline 2015, p. 7):

- strike of the financial crisis in 2008,
- employees' postretirement benefits,
- weak turnover ratios,
- and high debt ratio.

Opportunities

Daimler is focusing on the rapidly growing market with self- driving cars. The market is expected to have a value of $ 87 billion by 2030 and for now Daimler is leading the way. Company has started to test its Mercedes-Benz S 500 Intelligent Drive car in 2013. It proved that the autonomous car is possible. Daimler is the first company that introduced system connecting vehicle and traffic infrastructure data.

Electric vehicles segment and so called plug-in hybrid vehicle is expected to grow over the next few years due to environmental pushes, rising energy costs and increased emission regulations. Furthermore, it is expected that cost difference between hybrid electric cars and conventional models will reduce and more fuel efficient and less polluting cars will be strong segment in near future. Daimler launched some of hybrid vehicles such as Mercedes-Benz B-Class F-CELL, Fuel-CELL Hybrid city bus, Mercedes-Benz A-Class E-CELL, Mercedes-Benz S 400 Hybrid and many others.

Based on some economists' outlooks there is projection of global growth in demand for cars, vans and trucks at around 4% in following year. Chinese market will add up most to the automotive industry sales and US market will grow as well. Germany might also report revival of its demands.

Moreover, Daimler could expect an increase in worldwide demand for buses. The trend has been good and is high likely to go on. The Asia- Pacific is estimated to be backed by big economic boom that might lead to overall increase in consumer as well as government spending. Those economies such as China, Taipei, India will improve their key city transit systems and urban areas by buying more safe buses. Daimler's bus division is one of the biggest in the world and therefore the company is greatly built to capitalize on growing bus industry.

Opportunities for Daimler to look after can be (Marketline 2015, p. 8- 9):

- expanding into Asian markets,
- increasing demand for electric and hybrid cars,
- global increase in demand for cars, buses and trucks connected with more sophisticated infrastructure network.

Threats

Daimler has to be careful about increase of competitive pressure in automotive industry. Major factors affecting competition are quality, features, safety, price, environmental performance, product developments, and sales structure, and some others. Daimler trucks and buses also face increase in competitive pressure. Major players on automotive market are AB Volvo, BMW, Fiat, Toyota Motor, Ford Motor, Honda Motor, PSA Peugeot Citroen, Renault, General Motors, Tata Motors, and Volkswagen. Other competitors offer lower prices than Daimler and that could cause problems in the future if the quality of Daimler diminishes.

Prices of raw materials highly fluctuate because of impact of large institutional investors. Daimler is not really able to pass the price volatility on to customers because of competitive pressures.

Daimler operates globally and therefore currency exchange rates highly affect operations and their costs. Earnings are subjected to currency risks.

Finally, stricter environmental regulations globally such as safety regulations, restrictions on emissions, noise and vibrations from its products, use of toxic materials, hazardous wastes, and recycling cause Daimler to adjust the operations and manufacturing process with regard to

countries' specific regulations. Thus, Daimler needs to invest in research and development to improve and upgrade products and production facilities.

Threats for Daimler can be summarized as follows (Marketline, 2015, p. 10-11):

- crash of financial markets and economic slowdown,
- EU, US and Asian countries regulations,
- increase in demand for its competitors,
- political or economic scandal within the company.

4. Practical application and evaluation of performance indicators

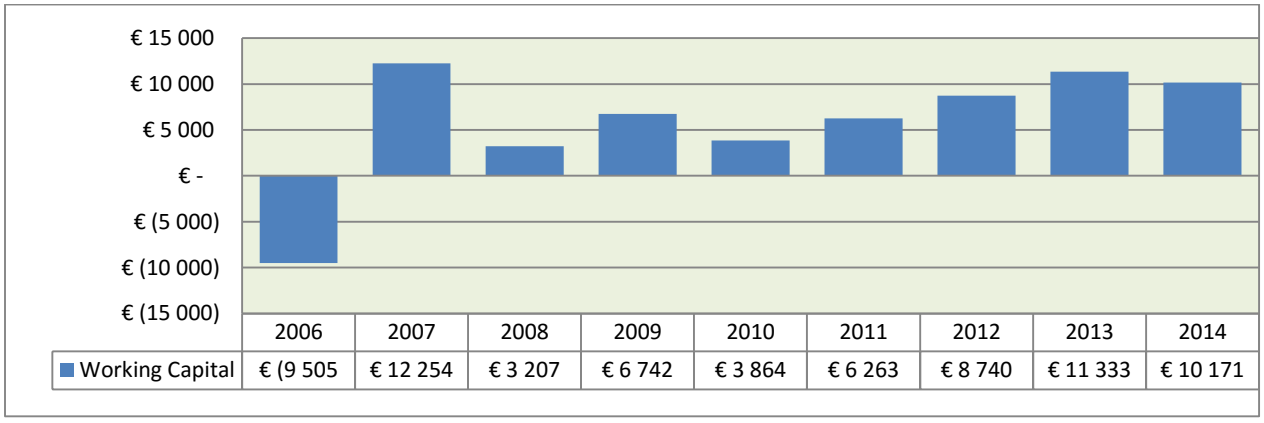
4.1. Financial Statement Analysis

In this part we subdue Daimler detailed financial-economic analysis. The Daimler's performance is analysed from aspects of financial health. Financial health is divided into six subgroups. We evaluate Daimler's liquidity, profitability, activity, and leverage measures. The financial analysis is completed by two bankruptcy models first Z-score and second credibility indicator index. In the section we look at Daimler in time period from 2006 to 2014.

4.1.1. Liquidity

Regarding liquidity, we are focusing on analysis of working capital, current ratio, and acid-test ratio. Optimal ratios are positive numbers for working capital, about 2.0 for current ratio and around 1.0 for acid- test ratio depending on the industry and company. For calculating working capital, current ratio and acid- test ratio formulas 2.1.1, 2.1.2 and 2.1.3 are used.

Figure 4.1: Development of net working capital 2006 - 2014

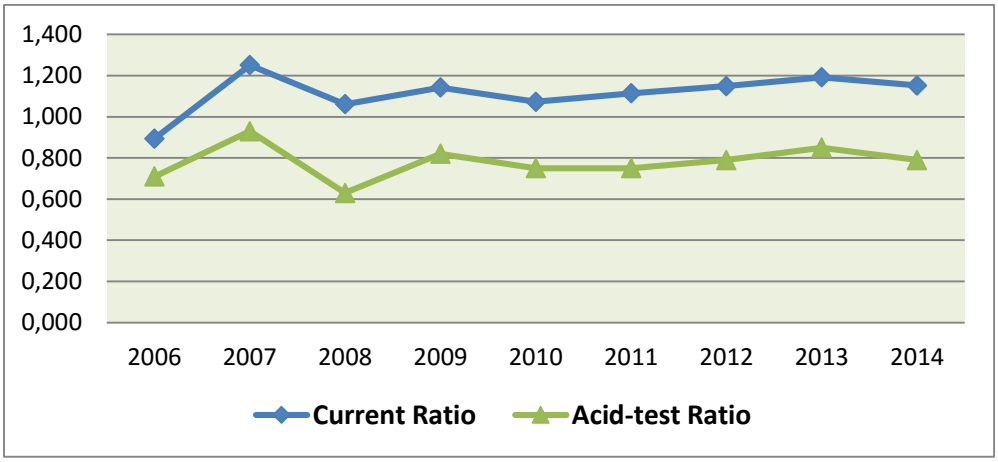


	2006	2007	2008	2009	2010	2011	2012	2013	2014
Working Capital	€ (9 505	€ 12 254	€ 3 207	€ 6 742	€ 3 864	€ 6 263	€ 8 740	€ 11 333	€ 10 171

Source: own elaboration based on annual reports in million euros

Working capital figures between 2007 and 2014 are mostly positive exclusive of year 2006, when the company reported negative 9.5 billion euros in working capital, figure 4.1. Positive net working capital is considered healthy indicator of Daimler's financial health. In 2007 right before the strike of the economic crisis the working capital reached the peak of 12.2 billion euros. From 2010 until 2014 the working capital significantly rose which is good sign for the company, figure 4.1.

Figure 4.2: Liquidity ratios: current ratio and acid-test ratio 2006-2014



Source: own calculations based on annual reports

As we can see in figure 4.2 none of the current ratio values reached 2.0. The best years appeared to be 2007 and 2013 with values of 1.25 and 1.19 respectively. In the remaining years current ratios moved between 0.90 and 1.15. In 2014 the current ratio dropped by 0.04 to 1.15 from 2013. Nevertheless, there is new trend coming in which basically allows well- managed big corporations to lower their current ratios to 1.0- 1.5 range in order to boost their efficiency and profitability ratios. From that perspective Daimler definitely belongs to well managed big corporations therefore relatively low current ratio is justifiable in this case.

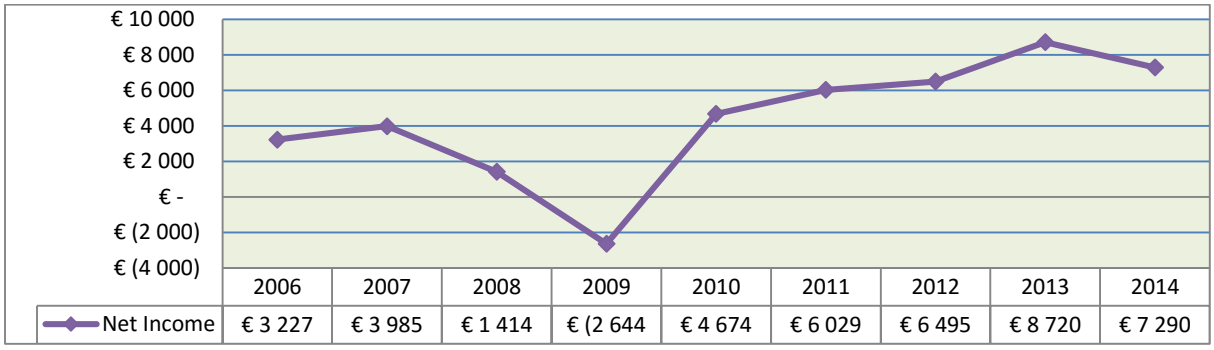
The acid- test ratio moves in the range from 0.63 to 0.93. Comparing to the optimal value of 1.0 the acid- test ratio shows solid performance. Daimler was trying to lower acid-test ratios as well as current ratios to improve overall efficiency and profitability. In the automotive industry the practice is to lower quick ratios below one. Therefore, the level of acid test ratio at around 0.8 is for Daimler justified.

To conclude, working capital and current ratio report quite healthy conditions between 2006 and 2014. The acid- test ratio is little bit below optimal values. To evaluate overall liquidity Daimler increased its assets prior to financial crisis in 2008 to protect itself from negative consequences of market crash and accordingly managed the situation by not reporting any solvency issues during the time of financial crisis.

4.1.2. Profitability

At this point the overall profitability is being evaluated by using net income, return on assets (ROA), and return on equity (ROE).

Figure 4.3: Daimler's development of earnings after taxes (EAT) (2006- 2014)

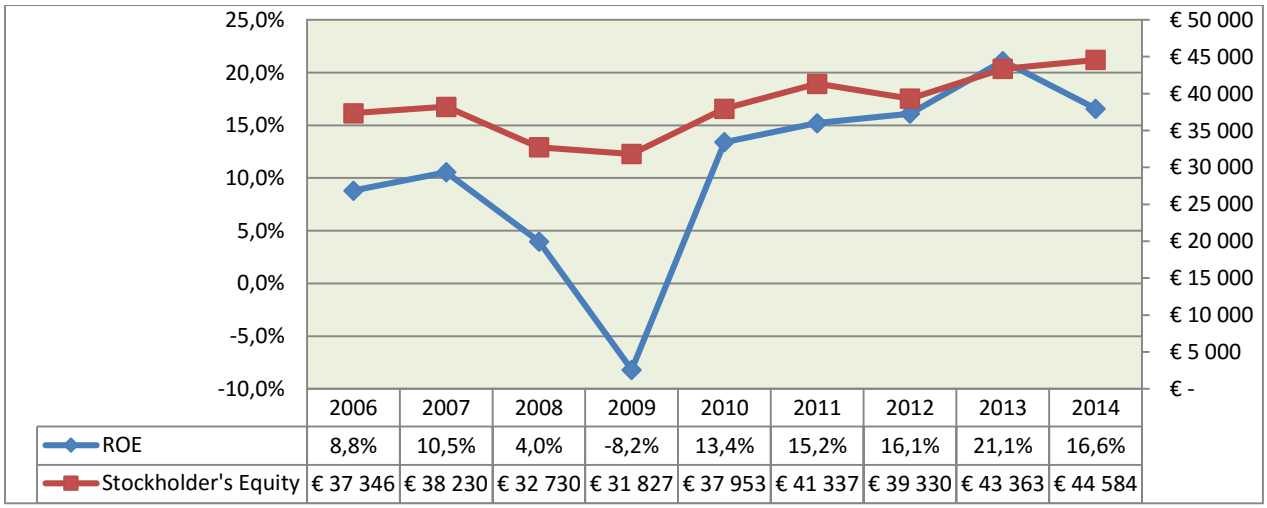


	2006	2007	2008	2009	2010	2011	2012	2013	2014
Net Income	€ 3 227	€ 3 985	€ 1 414	€ (2 644	€ 4 674	€ 6 029	€ 6 495	€ 8 720	€ 7 290

Source: own elaboration based on annual reports – million euros

The figure 4.3 nicely shows that even Daimler was tremendously affected by financial crisis in 2008. After steady increase of net profits in 2006 and 2007 there was sudden drop in 2008 which caused Daimler to report negative net income of € 1.4 billion due to global financial crisis. As the drop went on in 2009 Daimler reported negative net income of approximately € 2.6 billion. In 2010 Daimler's net income got back positive again and had been rising until 2013, which appeared to be the highest net income in the history of Daimler and amounted to € 8.72 billion. Daimler's earnings after taxes diminished to € 7.3 billion in 2014. To sum up development of net income Daimler was able to absorb the shock of the financial markets.

Figure 4.4: Daimler's development of return on equity (ROE) and equity



	2006	2007	2008	2009	2010	2011	2012	2013	2014
ROE	8,8%	10,5%	4,0%	-8,2%	13,4%	15,2%	16,1%	21,1%	16,6%
Stockholder's Equity	€ 37 346	€ 38 230	€ 32 730	€ 31 827	€ 37 953	€ 41 337	€ 39 330	€ 43 363	€ 44 584

Source: own elaboration based on annual reports, equity in million euros

Figure 4.4 demonstrates development of ROE and stockholder's equity. Daimler lost € 5.5 billion in equity from 2007 to 2008 and from 2008 to 2009 Daimler's equity dropped even more by around € 1 billion. Following years reported increase in stockholder's equity from 37.95 billion euros in 2010 to 44.58 billion euros in 2014, (figure 4.4).

Development of stockholder's equity is closely followed by development of ROE, using formula 2.1.4. ROE went down from 8.8% in 2006, and 10.5% in 2007 to 4.0% in 2008, and -8.2% in 2009. This proves that Daimler had significantly suffered under financial crisis. As we can see Daimler recovered with ROE 13.4% in 2010, 15.2% in 2011, 16.1% in 2012, and 21.1% in 2013 reaching history high. In 2014 Daimler reported ROE of 16.6%.

Return on Assets is calculated by using formula 2.1.7 from theoretical part where multiplication of profit margin and asset turnover gives final ROA. Final values appear in last column of the table 4.1. Daimler reported two lowest ROAs in 2008 and 2009. In 2008 Daimler's ROA amounted to 1.06%, and -2.03% in 2009. The highest ROAs are reported in 2011 and 2013 with values of 4.25% and 5.26% respectively.

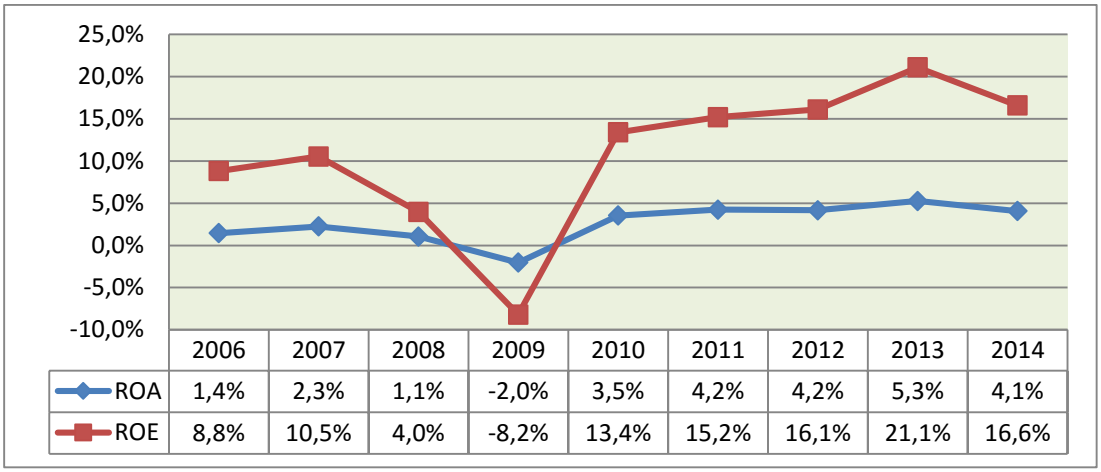
Table 4.1: Daimler's development of return on assets (ROA)

Years	Profit margin	Asset Turnover	ROA
2006	3.25%	0.45	1.45%
2007	3.92%	0.58	2.26%
2008	1.44%	0.74	1.06%
2009	-3.35%	0.60	-2.03%
2010	4.78%	0.74	3.53%
2011	5.66%	0.75	4.25%
2012	5.68%	0.73	4.18%
2013	7.39%	0.71	5.26%
2014	5.61%	0.73	4.07%

Source: own calculations based on annual reports

Both ratios conclude the same development (figure 4.5), with negative ROA and ROE in 2009, -2.03%, and -8.2% respectively. ROA went up in 2010 to 3.53% and remained positive until 2014. In 2013 ROA went up to 5.3% and dropped little bit in 2014, to 4.1%.

Figure 4.5: Daimler's return on assets (ROA) and return on equity (ROE)



	2006	2007	2008	2009	2010	2011	2012	2013	2014
ROA	1,4%	2,3%	1,1%	-2,0%	3,5%	4,2%	4,2%	5,3%	4,1%
ROE	8,8%	10,5%	4,0%	-8,2%	13,4%	15,2%	16,1%	21,1%	16,6%

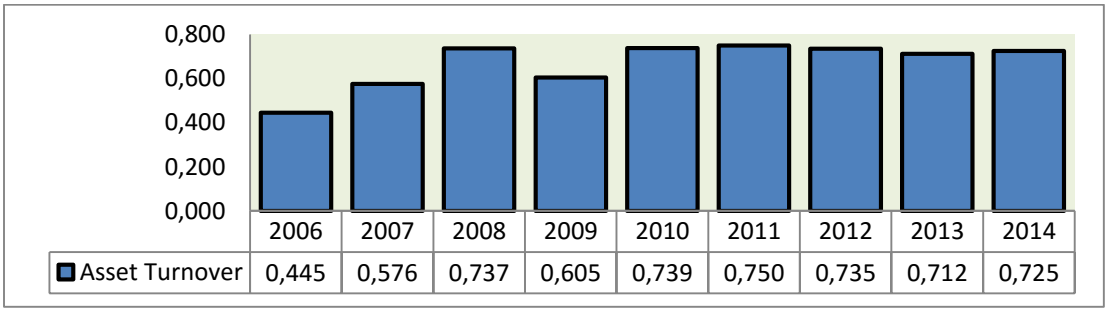
Source: own elaboration based on annual reports

To sum up, overall profitability of Daimler Group is on the rise. Profitability ratios and net income figures commonly demonstrate negative consequences of financial crisis. Even though, entire automotive industry was hit by financial crisis, Daimler was able to get from the crisis and few years later reported the history highest sales, profits and ROE.

4.1.3. Activity (Efficiency)

Activity is field of financial analysis that helps us better understand how effectively Daimler uses its resources. Asset turnover, days in inventory (DII), day sales outstanding (DSO), day payable outstanding (DPO) are financial ratios that are being looked at in this chapter.

Figure 4.6: Daimler's asset turnover (2006- 2014)



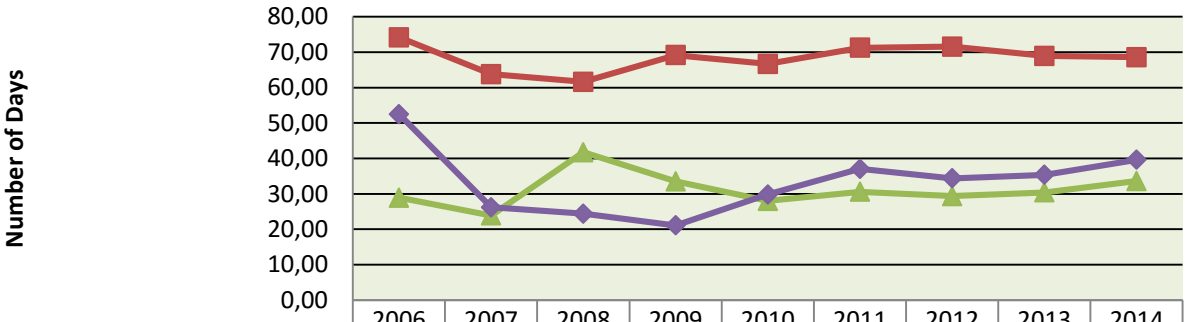
	2006	2007	2008	2009	2010	2011	2012	2013	2014
Asset Turnover	0,445	0,576	0,737	0,605	0,739	0,750	0,735	0,712	0,725

Source: own elaboration based on annual reports

Asset turnover tells us what amount of sales is generated by one dollar of assets. The higher number the more effective Daimler is. Figure 4.6 reveals poor performance during 2006, 2007, and 2009.

Daimler's one-dollar asset generated 0.45, 0.58 and 0.61 dollars of sales. In years 2008, 2010, 2011, 2012, 2013, and 2014 asset turnover exceeded 0.70.

Figure 4.7: Daimler's days in inventory, day sales outstanding, day payables outstanding (2006-2014)



	2006	2007	2008	2009	2010	2011	2012	2013	2014
Days in Inventory	74,16	63,76	61,60	69,14	66,66	71,23	71,54	68,93	68,58
Day Sales Outstanding	28,90	23,89	41,75	33,51	28,00	30,56	29,37	30,38	33,61
Day Payable Outstanding	52,47	26,20	24,40	21,11	29,81	37,04	34,39	35,37	39,63

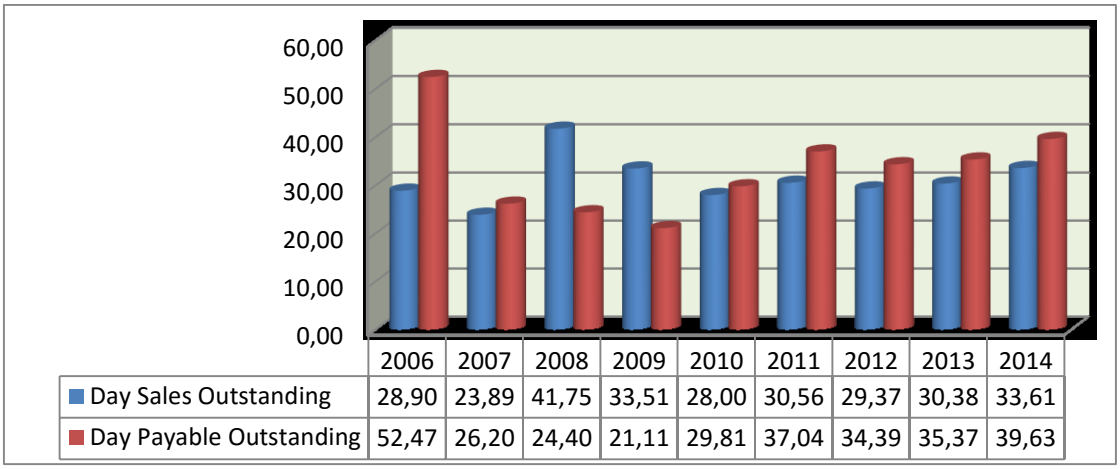
Source: own elaboration based on annual reports

As we can see in figure 4.7, the days in inventory (DII) measures how long it takes in average to produce one car. In 2006, 2011 and 2012 it takes Daimler more than 70 days in average to manufacture the car. Financial crisis between 2007 and 2010 forced Daimler to be more efficient and days in inventory went down to 63.8, 61.6, 69.1, and 66.7 days per car. In 2013 and 2014 it takes Daimler 68.9, and 68.6 days respectively in average to produce the car.

Day sales outstanding (DSO) measures how long it takes Daimler to gather money from point of selling the car to point of money inflow in the bank account. Figure 4.8 determines that in the most years the payments were gathered within 40 days, except 2008, when it took little longer, 41.75 days caused mainly to solvency issues of some of the Daimler's customers.

Day payable outstanding (DPO) is on the other side measurement for Daimler Group to determine how much time they need to pay to its suppliers. From 2007 to 2010 the Daimler paid within 30 days. In 2011 and 2012 it was 37.04 days, and 34.39 days respectively.

Figure 4.8: Daimler's day sales outstanding and day payables outstanding 2006- 2014



	2006	2007	2008	2009	2010	2011	2012	2013	2014
Day Sales Outstanding	28,90	23,89	41,75	33,51	28,00	30,56	29,37	30,38	33,61
Day Payable Outstanding	52,47	26,20	24,40	21,11	29,81	37,04	34,39	35,37	39,63

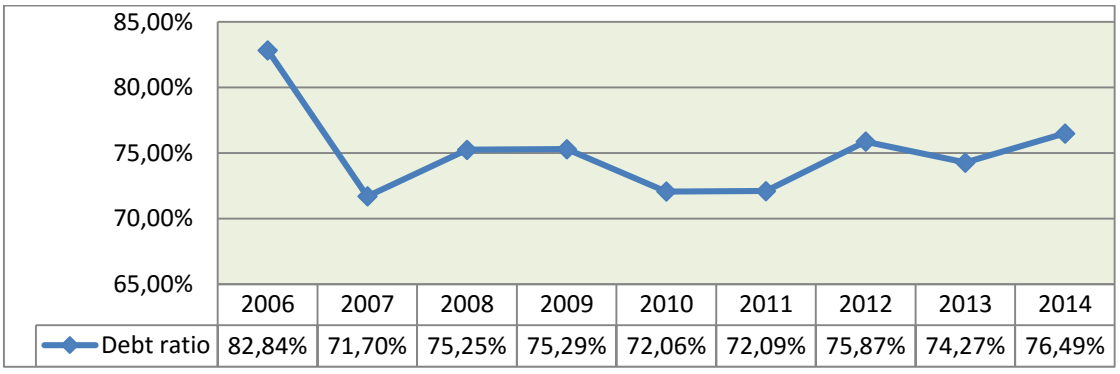
Source: own elaboration based on annual reports

Golden rule of every business is to keep cash on the hand. Thus, day sales outstanding ratio should always be less than day payable outstanding ratio. This means that companies want to dispose with the cash from customers before they have to pay to their suppliers. Based on figure 4.8, we see that Daimler followed the rule in all years except 2008 and 2009 when Daimler paid off their liabilities faster than its customers paid them. In 2008 DSO equalled to 41.75 which was greater than DPO equalled to 24.4 and in 2009 DSO (33.5 days) was greater than DPO (21.1 days). That could have caused some cash flow momentum difficulties.

4.1.4. Financial leverage measures

These measures show the proportion of debt in the capital structure. Here we are using two important measures debt ratio and times interest earned, figure 4.9 and figure 4.10.

Figure 4.9: Daimler's debt ratio 2006- 2014

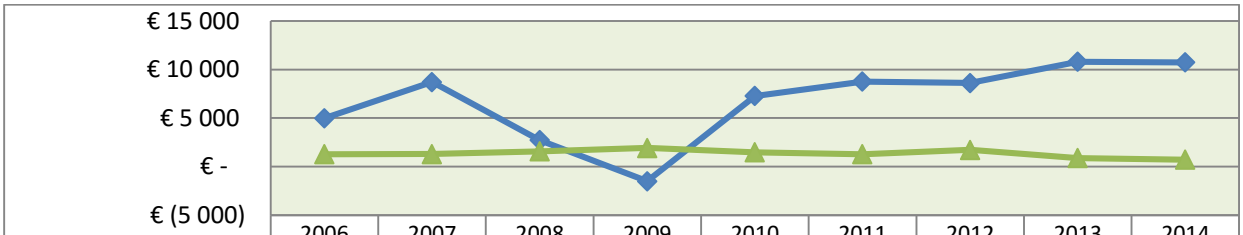


	2006	2007	2008	2009	2010	2011	2012	2013	2014
Debt ratio	82,84%	71,70%	75,25%	75,29%	72,06%	72,09%	75,87%	74,27%	76,49%

Source: own elaboration based on annual reports

As we can see debt ratio exceeds 70% in all years which clarifies that more than 70% of total capital is financed by debt, figure 4.9. The values are stable and range from 71.7% in 2007 to 82.8% in 2006. During financial crisis Daimler was able to maintain moderate debt considering its total assets and therefore outperform its competitors in automotive industry. In 2013 and 2014 Daimler reports debt ratio 74.3%, and 76.5%. Therefore, Daimler used its resources quite efficiently.

Figure 4.10: Development of EBIT and interest expenses 2006- 2014

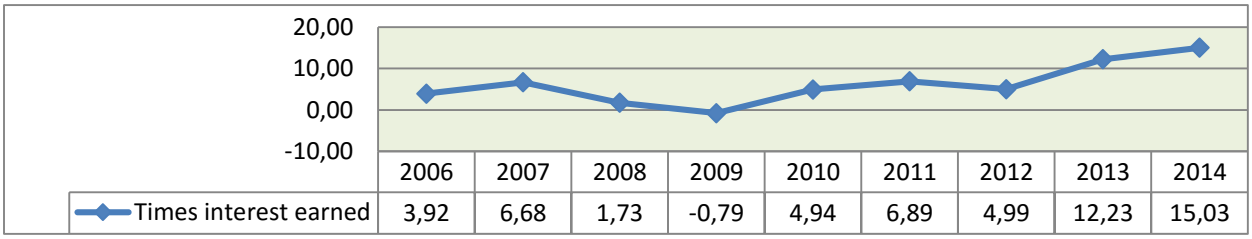


	2006	2007	2008	2009	2010	2011	2012	2013	2014
EBIT	€ 4 992	€ 8 710	€ 2 730	€ (1 513)	€ 7 274	€ 8 755	€ 8 615	€ 10 811	€ 10 743
Interest expense	€ 1 272	€ 1 303	€ 1 579	€ 1 921	€ 1 471	€ 1 271	€ 1 725	€ 884	€ 715

Source: own elaboration based on annual reports (€ million)

Daimler had to pay the highest interest expenses in 2009 (1.92 billion euros) caused again by financial crisis that stroked in 2008. Between 2013 and 2014 Daimler was able to stabilize the interest expense which equalled to less than 1 billion euros.

Figure 4.11: Daimler's interest coverage 2006- 2014



	2006	2007	2008	2009	2010	2011	2012	2013	2014
Times interest earned	3,92	6,68	1,73	-0,79	4,94	6,89	4,99	12,23	15,03

Source: own elaboration based on annual reports

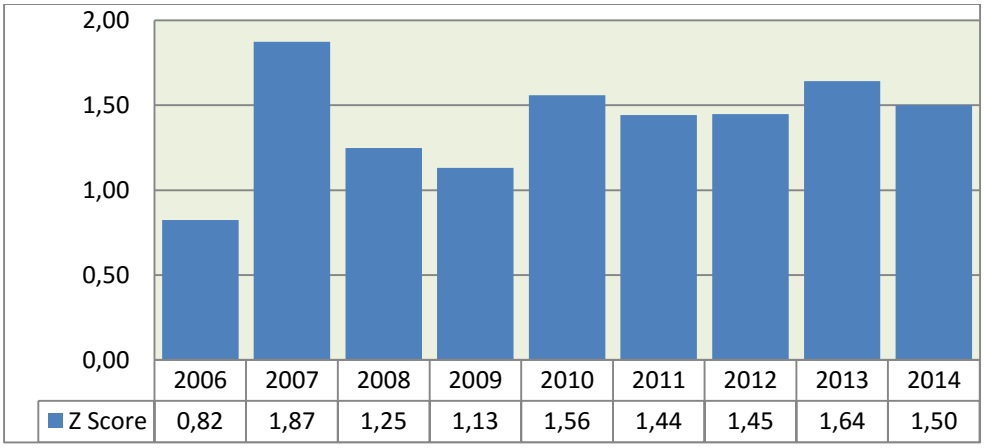
Next ratio measures firm's ability to earn enough money to cover its annual interest requirement and is called times interest earned which reflects overall riskiness. In 2009 Daimler Group was lacking of enough earnings to cover its interest expense and this resulted in interest coverage to drop to -0.79. However, Daimler improved in following years and was able to cover its interest expenses by earnings. In 2010 Daimler earned almost 5 times more, in 2012 it was 7 times more,

and in 2012 5 times more than its interest expenses. In 2013 and 2014 it was already 12 times and 15 times more than interest expenses resulting in rapid decrease of overall Daimler's riskiness.

Overall debt measures express good use of financial leverage. Daimler Group uses efficiently its debt. Daimler's ability to pay off its total interest expenses was very good between 2011 and 2014.

4.1.5. Z-score

Figure 4.12: Daimler's development of Z-score 2006- 2014



	2006	2007	2008	2009	2010	2011	2012	2013	2014
Z Score	0,82	1,87	1,25	1,13	1,56	1,44	1,45	1,64	1,50

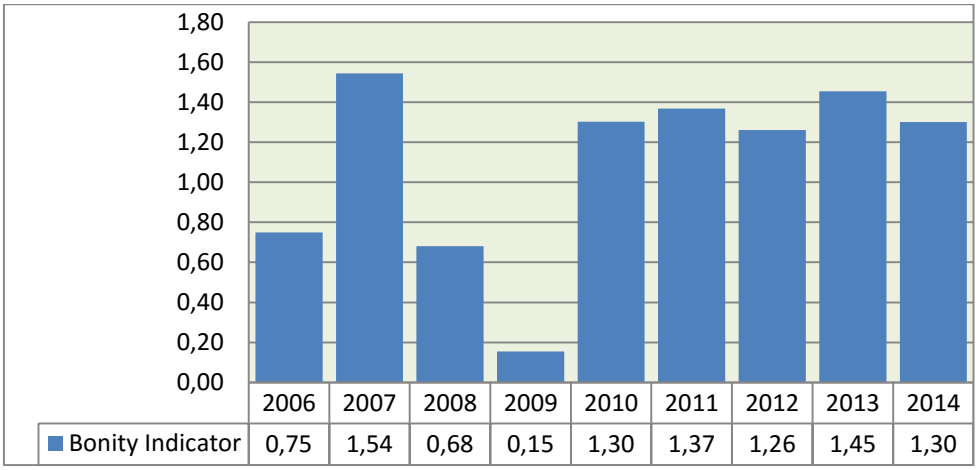
Source: own elaboration based on annual reports

By calculating Z-score for individual years we are determining whether Daimler was likely to go bankrupt or not. Figure 4.12 shows that the lowest numbers are reported in 2006 and 2009 when financial crisis stroke. Other than mentioned years Daimler's Z-score moved from 1.25 in 2008 to 1.87 in 2007 and in 2013 and 2014 Z-score equalled to 1.64, and 1.5 respectively. It is important to emphasize that Z-score is not the greatest tool for very large companies which Daimler undoubtedly is. The results concluded that Daimler's likelihood of bankruptcy is low between 2006 and 2014.

4.1.6. Credibility indicator index

Credibility indicator index demonstrates likelihood of bankruptcy for Daimler. In contrast performance development throughout the years is more accurately illustrated with credibility indicator index than Z-score. Formula 2.1.20 is used to calculate credibility index for individual years. There was sudden drop in 2008 and 2009, especially, when Daimler's credibility indicator index dropped to 0.68 and 0.15, (figure 4.13). Besides that, only in 2006 credibility indicator index dropped below one. From 2010 to 2014 Daimler's credibility indicator index varied from 1.26 to 1.45 which based on general evaluation demonstrates good and financially healthy company from 2006 to 2014.

Figure 4.13: Daimler's development of credibility indicator index 2006- 2014



	2006	2007	2008	2009	2010	2011	2012	2013	2014
Bonity Indicator	0,75	1,54	0,68	0,15	1,30	1,37	1,26	1,45	1,30

Source: own elaboration based on annual reports

4.1.7. Conclusion of the financial statement analysis

Regarding Daimler's liquidity, net working capital remained positive between 2007 and 2014. Only in 2006 Daimler reported negative net working capital. From 2010 the net working capital steadily grew which gave Daimler buffer against the sudden increase of company's obligations. Current ratio and acid test ratio follow similar development where in 2007 the ratio peaked and in 2008 the both ratios dropped below the standard values. Beside that both ratios indicate positive and healthy values.

Daimler's profitability was analysed by net income, ROE, and ROA. Net income was affected by financial crisis that took place from 2007 to 2009. In 2009 Daimler had to report negative EAT. Beside that Daimler remained positive and between 2010 and 2013 EAT grew steadily. Regarding ROE Daimler reported relatively low values from 2006 to 2008. In 2009 the ROE reached the

bottom, -8.2%. From 2010 to 2014 Daimler rose regarding ROE while the highest ROE appeared to be in 2013 (around 20%). ROA pretty much run off the ROE with relatively low numbers from 2006 to 2008, in 2009 ROA hit the bottom and between 2010 and 2014 ROA had recovered.

Regarding activity, asset turnover was recovered after the crisis and amounted to around 0.73. Days in inventory remained very stable at level of around 70 days per vehicle. In 2008 and 2009 the inventory days dropped little bit. Daimler reported slight problems regarding its day sales outstanding between 2008 and 2009 when the customers were little late with its payments. Beside that day sales outstanding and day payables outstanding reported healthy values.

Financial leverage was analysed by debt ratio, interest coverage and total interest expenses. Debt ratio was the highest in 2006 (around 83%) and then in 2008, 2009, and 2014 reached over 75%. In remaining years, debt ratio moved from 72% to around 75%. Regarding interest coverage only year when Daimler did not make enough money to cover its interest was 2009. Next years reported relatively high interest coverage ranging from 2 to 15.

Overall Daimler's performance between 2006 and 2014 based on income statements and balance sheets was positive. The liquidity trend was positive and levels are considered to be satisfactory. Profitability ratios show signs of financial crisis between 2008 and 2009 but from 2010 to 2014 profitability evolution was positive. Some of the activity ratios could be improved, days in inventory and day sales outstanding, especially. Financial leverage values beside 2008 and 2009 reported quite healthy conditions.

4.2. Modern methods for evaluating Daimler's performance

In this section we use some of the modern approaches to firm's financial performance evaluation. Economic value added (EVA) entity is used to evaluate managerial performance of Daimler for most current years 2011- 2014. EVA takes into account past data which will be applied. Market value added (MVA) is used to determine Daimler's future potential and expected performance development. Next will be market value ratios analysis such as P/E ratio, M/B ratio and price to cash flow ratio.

4.2.1. EVA entity for Daimler

EVA for Daimler Group was determined for last four years 2011- 2014. To come up with all the variables we need to proceed as mentioned in theoretical part which includes in first step calculation of WACC, second step NOPAT, third NOA and in the final step we will come up with EVA entity.

Step one- calculating WACC

For cost of equity we borrowed official numbers from annual reports which equalled to 8% between 2011 and 2014. For cost of debt we substitute into formula 2.2.7. To calculate WACC we need to add market value of equity (MV_e) and market value of debt (MV_d) where formulas 2.2.8 and 2.2.9 are used. Furthermore, there is tax deduction of debt that is added into the formula for WACC. Daimler home market is Germany and therefore we use taxation of 29.60%.

Table 4.2 below shows all the variables necessary for computing WACC. The data is used for time period 2011 – 2014. Cost of equity stays stable at 8% whereas cost of debt fluctuates together with interest rates. In 2014 it was the most convenient to borrow money for Daimler since the cost of debt equalled to only 0.74%. Market value grew from 2011 rapidly and significantly which was caused by increased stock price. Estimated market value of debt also went up steadily. The lowest average cost of capital appeared to be in 2011 where market value of equity was quite low. In 2013 Daimler reported highest WACC caused by the highest MV_e.

Table 4.2: Weighted Average Cost of Capital between 2011 and 2014

Years	Cost of Equity	Cost of Debt	Market Value of Equity	Market Value of Debt	WACC
2011	8.00%	1.76%	€ 44,036.46	€ 72,417.00	3.79%
2012	8.00%	1.98%	€ 55,197.48	€ 87,201.00	3.95%
2013	8.00%	0.97%	€ 87,584.53	€ 91,281.00	4.27%
2014	8.00%	0.74%	€ 85,765.87	€ 97,014.00	4.03%

Source: own calculations based on annual reports – million euros

Step two- calculating NOPAT

Here we focus on operating profit after taxes (NOPAT). NOPAT is computed by using formula 2.2.10. Sales and costs of goods sold are retrieved from Daimler's income statements as well as amortization and depreciation. Operating profit is calculated as sales less costs of goods sold less amortization and depreciation. Net operating profit is, however, calculated by multiplying operating profit and tax shield which is (1-T) where T equals to 29.60%, table 4.3. As we can see NOPAT reaches the highest value in 2014, when also total revenue and costs of goods sold topped other years. Amortization and depreciation grew constantly year by year.

Table 4.3: Net operating profit after taxes between 2011 and 2014

Years	Sales	Costs of Goods Sold	A&D	Operating Profit	NOPAT
2011	€ 106,540.00	€ 81,023.00	€ 3,575.00	€ 21,942.00	€ 15,447.17
2012	€ 114,297.00	€ 88,784.00	€ 4,067.00	€ 21,446.00	€ 15,097.98
2013	€ 117,982.00	€ 92,855.00	€ 4,368.00	€ 20,759.00	€ 14,614.34
2014	€ 129,872.00	€ 101,688.00	€ 4,999.00	€ 23,185.00	€ 16,322.24

Source: own calculations based on annual reports – million euros

Step three- calculating NOA

Net operating asset uses formula (2.2.11) where we sum up net working capital and net fixed assets. Table 4.4 shows the results between 2011 and 2014. Net working capital is calculated as current assets less current liabilities and Daimler's net assets are found in annual reports usually under section B.22.

Table 4.4 demonstrates the development of net operating assets (NOA) when in 2011 Daimler disposed by almost 38 billion euros whereas in 2013 and 2014 NOA reached almost 52 billion and 51 million euros respectively.

Table 4.4: Net operating assets between 2011 and 2014

Years	Net working capital	Net fixed assets	NOA
2011	€ 6,263.00	€ 31,426.00	€ 37,689.00
2012	€ 8,740.00	€ 37,521.00	€ 46,261.00
2013	€ 11,333.00	€ 40,648.00	€ 51,981.00
2014	€ 10,171.00	€ 40,779.00	€ 50,950.00

Source: own calculations based on annual reports –million euros

Step four- calculating EVA entity

In last step we substitute the results of NOPAT, NOA and WACC for formula 2.2.12 which gives us final economic values added of entity for years 2011- 2014. As we can see from table 4.5 Daimler's performance is pretty stable, EVA varies just little bit. In 2011 Daimler total EVA for its stakeholders equalled to approximately € 14.1 billion, in 2012 it was little less 13.4 billion euros, and in 2013 Daimler reported the lowest EVA from all analysed years, 12.6 billion euros compared to 2014 where Daimler added the highest value to its stakeholders that amounted to around 14.4 billion euros.

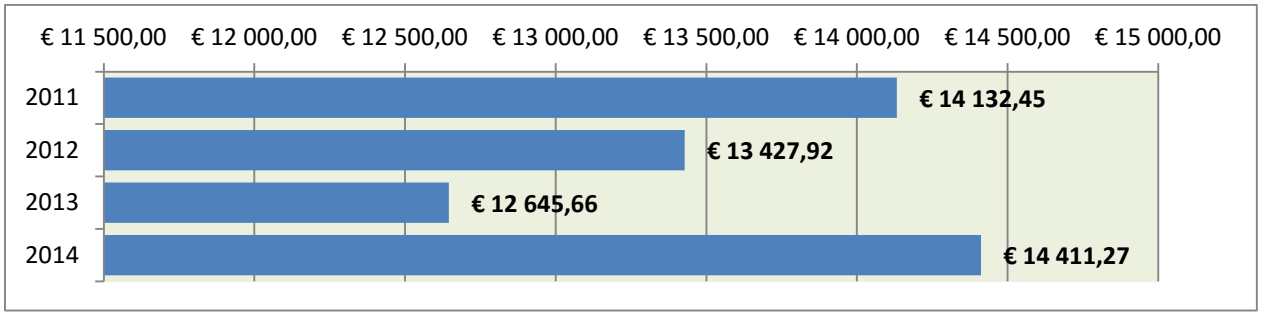
Table 4.5: Economic value added of entity between 2011 and 2014

Years	NOPAT	NOA	WACC	EVA
2011	€ 15,447.17	€ 37,689.00	3.49%	€ 14,132.45
2012	€ 15,097.98	€ 46,261.00	3.61%	€ 13,427.92
2013	€ 14,614.34	€ 51,981.00	3.79%	€ 12,645.66
2014	€ 16,322.24	€ 50,950.00	3.75%	€ 14,411.27

Source: own calculations based on annual reports – million euros

Figure 4.14 illustrates development of EVA. In 2013 Daimler reported EVA equalled to approximately 12.4 billion euros which is by almost € 0.9 billion less than in previous year. Daimler recovered EVA in next year (2014) by adding almost 1.9 billion euros.

Figure 4.14: Comparison of EVA entity between 2011 and 2014



Source: own elaboration based on annual reports – million euros

To conclude EVA has some advantages and some drawbacks. There are many variables that play important role in determining economic value added of entity. Several steps and different assumptions prior the final calculation had to be adopted. Each step of the calculation is simplified which can have an impact on final EVA.

4.2.2. MVA for Daimler

To compute market value added (MVA) it is being used formula 2.2.13 where we subtract stockholder's equity invested in the company from number of shares outstanding times share price. It is basically calculation that shows the difference between market value of the company and overall invested capital. In 2011 the total MVA equalled to negative 5.2 billion euros which can be partially explained by recovery from the crisis in 2009. In 2012 MVA went up by almost 10 billion euros to € 4.72 billion. In 2013 and 2014 Daimler reported already recovered MVAs that amounted to 23.92 billion and 29.2 billion euros.

Table 4.6: Calculation of MVA for time frame between 2011 and 2014

Years	Share price	Number of shares outstanding	Stockholder's equity	MVA
2011	€ 33.92	1 066 000 000	€ 41,337.00	€ (5,178.30)
2012	€ 41.32	1 066 000 000	€ 39,330.00	€ 4,717.00
2013	€ 62.90	1 069 800 000	€ 43,363.00	€ 23,927.40
2014	€ 68.97	1 069 800 000	€ 44,584.00	€ 29,200.10

Source: own calculations based on annual reports – in million euros

4.2.3. Market value ratios

In this part we calculate subsequently price to earnings ratios (P/E), price to cash flow ratios, and market price to book ratios (M/B) for Daimler. We take into account data for time period between 2006 and 2014.

Price to earnings ratio

Based on formula 2.2.14 we calculate P/E ratio between 2006 and 2014. We extend the time frame here to draw better picture of the P/E development, see table 4.7 below. As we can see the good P/E values were reported from 2006 to 2008 where Daimler reached the values of 12.8, 17.4 and 18.9, which proved Daimler's strong growth prospects. Financial crisis hit the Daimler's P/E ratio in 2009 which caused P/E to drop to negative 14.2. Between 2010 and 2014 Daimler reported P/E ratios around 10 beside 2011 and 2012 that P/E ratio went down to 6.4, and 7.2 respectively.

Table 4.7: Development of P/E from 2006 to 2014

Years	Share price	Earnings per share (EPS)	P/E Ratio
2006	€ 46.80	€ 3.66	12.787
2007	€ 66.50	€ 3.83	17.363
2008	€ 26.70	€ 1.41	18.936
2009	€ 37.23	€ (2.63)	-14.156
2010	€ 50.73	€ 4.28	11.853
2011	€ 33.92	€ 5.32	6.376
2012	€ 41.32	€ 5.71	7.236
2013	€ 62.90	€ 6.40	9.828
2014	€ 68.97	€ 6.51	10.594

Source: own elaboration based on annual reports from 2006 to 2014.

Price to cash flow ratio

The best years appeared to be 2010 and 2014 where ratios reached 6.73, and 6.00 respectively. In 2006, 2008, and 2011 the ratio had not reached 4.0. We see that year 2009 is very different from others because the world crisis hit the markets and Daimler generated very little cash flow relative to its stock price. The cash flow per share in 2009 equalled to 0.61 EUR which have caused skyrocketing of the price to cash flow ratio in 2009 to almost 61.5.

Table 4.8: Development of price to cash flow ratio from 2006 to 2014

Years	Share price	Cash flow per share	Price/Cash Flow Ratio
2006	€ 46.80	€ 15.73	2.98
2007	€ 66.50	€ 11.83	5.62
2008	€ 26.70	€ 7.59	3.52
2009	€ 37.23	€ 0.61	61.49
2010	€ 50.73	€ 7.54	6.73
2011	€ 33.92	€ 9.01	3.76
2012	€ 41.32	€ 9.91	4.17
2013	€ 62.90	€ 12.23	5.14
2014	€ 68.97	€ 11.49	6.00

Source: own elaboration based on annual reports from 2006 to 2014.

Market price to book ratio

The best years with the highest growth prospects are 2007, 2014, 2013 with ratios equalled to 1.76, 1.65, and 1.55, table 4.9. The years with the lowest market/book ratios are 2008 and 2011 with values 0.76, and 0.87.

Table 4.9: Development of market price to book value ratio in 2006 - 2014

Years	Share price	Book value per share	Market/Book Ratio
2006	€ 46.80	€ 36.33	1.29
2007	€ 66.50	€ 37.70	1.76
2008	€ 26.70	€ 35.29	0.76
2009	€ 37.23	€ 31.08	1.20
2010	€ 50.73	€ 35.60	1.42
2011	€ 33.92	€ 38.78	0.87
2012	€ 41.32	€ 36.89	1.12
2013	€ 62.90	€ 40.53	1.55
2014	€ 68.97	€ 41.68	1.65

Source: own elaboration based on annual reports from 2006 to 2014.

4.2.4. Conclusion

EVA entity remained pretty stable between 2011 and 2014. It went from € 14.1 billion in 2011 to € 13.4 billion in 2012. In 2013 EVA entity equalled to € 12.6 billion and in 2014 it was 14.4 billion euros. The Daimler's EVA drop in 2013 is caused by decline in operating profit and the highest cost of capital (WACC) which equalled to 3.79% from all analysed years. Operating profit went down to € 20.7 billion compared to remaining years where the operating profit range d between€ 21.3 billion and € 24.1 billion. Furthermore, direct impact on operating profit has costs of goods sold that are for Daimler the highest in 2013, around 79% from total revenues. The increase of costs of goods sold is a result of very offensive strategy in 2013. Daimler created great base for the future thanks to heavy investments in property, plant and equipment as well as R&D.

In 2011 Daimler reported MVA equalled to negative € 5.2 billion. Next years were for Daimler more optimistic MVA amounted to € 4.7 billion in 2012, € 23.9 billion in 2013, and € 29.2 billion in 2014. MVA negative in 2011 can be explained by very low market price of the Daimler's stocks that were traded for around € 34 per share at the end of the year. The year 2011 was very volatile and turbulent. Daimler started year with share price at around € 58 however spreading of uncertainty and deepening debt crisis in Eurozone (Greece and Ireland) together with earthquake in Japan and rising conflicts in North Africa and Middle East caused stock price to significantly drop.

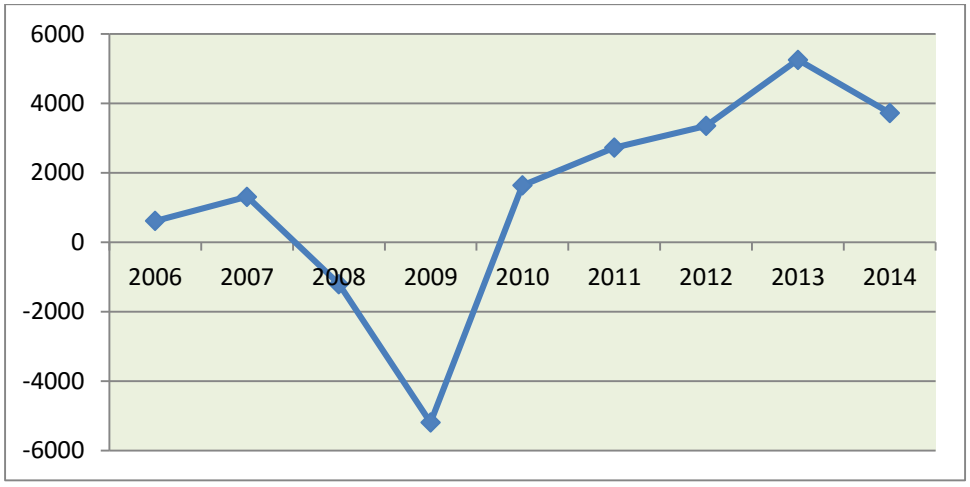
Regarding market value ratios, Daimler reported very healthy P/E from 2006 to 2008. In 2009 Daimler's P/E dropped to -14 while next year improved and remained positive until 2014 ranging from 6.3 in 2011 to 11.8 in 2010. Due to very low cash flow in 2009 the price to cash flow reached 61. Beside the extreme year, price to cash flow ratio ranged from 3.0 to 6.0. Market price to book ratio reached the lowest in 2008 and 2011 while the rest of the years it was reported P/B ratio at levels ranging from 1.1 to 1.8.

Overall, the modern approach indicators revealed that beside financial crisis between 2008 and 2009 there were other events that significantly touched Daimler's operations and therefore its economic performance.

4.3. Pyramidal decomposition of the EVA equity

To better understand what aspects had the most important influence on development of Daimler's financial health we used functional decomposition method for EVA equity. Figure 4.15 below shows that EVA went down in 2008 and even more in 2009 due to financial crisis that hit the markets. Daimler reported negative EVA of € -1.2 billion in 2008 and € - 5.2 billion in 2009. After that from 2010 to 2013 the EVA steadily had grown until 2014 when it went down little bit compared to 2013. Decomposition of EVA is here to show us what components operated in what directions and what was their influence before, during, and after the crisis and what components helped the company to get out of the crisis. For the analysis we are going to focus on five time intervals (2007-2008, 2008-2009, 2009-2010, 2012-2013, and 2013-2014). The components that are the most important will be more closely analysed.

Figure 4.15: Development of EVA equity between 2006 and 2014



Source: own elaboration based on annual reports

2007- 2008

Between 2007 and 2008 EVA dropped by around 2.5 billion euros. The highest negative impact on the decline of the EVA have first return on sales (ROS) that went down by -5.8% and second increase in cost of equity that went from 7% to 8%, see annex 1 for decomposition and table 4.10 for results of the decomposition. ROS influence on the drop of the EVA equalled to -2849.38. For cost of equity it was -354.8, table 4.10. The most positive impact had financial leverage with influence of 368.82 that operated in opposite direction than ROS or cost of equity. Equity's steeper decrease resulted in increase of financial leverage.

Table 4.10: Pyramidal decomposition of EVA between 2007 and 2008 - results

Component ratio	Symbol	Influence	Ranking
Equity	E	7.04	3
Cost of equity	R_E	-354.8	5
Interest and tax burden	EAT/EBIT	341.58	2
Financial leverage	A/E	368.82	1
Return on sales	EBIT/Rev	-2849.38	6
Asset turnover	Rev/A	-26.55	4
Economic value added	**EVA**	**-2513.29**	

Source: own elaboration based on annual report 2008

The economic situation had immediate impact on the Daimler's revenue, assets, and equity. Revenue went down by 3.05 %. Furthermore, total equity dropped by 14.39% and total assets fell by 2.12%, table 4.11. Two major influencers are EAT and EBIT. Both variables significantly weakened EAT by 64.52 % and EBIT by 68.66%. Such a huge drop of EAT and EBIT can be explained by significant decrease of net financial income from financial operations that went from negative 228 million euros to negative 2.2 billion euros. In other words, people were more hesitant regarding buying new cars by using leasing, loans and other services that Daimler was providing under financial service division. Also selling expenses had gone up as well as general administrative expenses. Even though the percentage drop looks frighteningly Daimler managed to stay in positive numbers with net profit in 2008 that amounted to € 1.4 billion.

Table 4.11: Percentage change of chosen variables 2007- 2008

Variable	EAT	EBIT	Revenue	Assets	Equity	Cost of equity
% Δ from 2007 to 2008	-64.52%	-68.66%	-3.05%	-2.12%	-14.39%	+1.00%

Source: own elaboration based on annual report 2008

2008- 2009

In 2009 Daimler had to face even deeper financial problems caused by financial crisis. For majority of firms, in automotive industry especially, 2009 was the year with the worst consequences. As we can see in table 4.12 the EVA fell by almost 4 billion euros compared to the previous year 2008. The highest negative influence on the EVA is again return on sales, which totally bottomed out. Component ROS has negative impact of -4706.40 on the fall of EVA equity, table 4.12. Second

most negative impact is asset turnover component with influence of -83.51. The highest positive impact is an increase of interest and tax burden, ranked first, see table 4.12 or annex 3 for entire decomposition.

Table 4.12: Pyramidal decomposition of EVA between 2008 and 2009 - results

Component ratio	Symbol	Influence	Ranking
Equity	E	90.24	2
Cost of equity	R_E	0.00	4
Interest and tax burden	EAT/EBIT	713.49	1
Financial leverage	A/E	0.43	3
Return on sales	EBIT/Rev	-4706.40	6
Asset turnover	Rev/A	-83.51	5
Economic value added	**EVA**	**-3985.76**	

Source: own elaboration based on annual report 2009

Between 2008 and 2009 assets and equity had gone down by 2.57 %, and 2.76 % respectively. Total Daimler's revenue diminished by almost 20%. Net income (EAT) and EBIT slumped by around 155 % and 287 % respectively which is the highest drop in the history of Daimler, table 4.13. In 2009 Daimler managed to decrease all the variables that affect EBIT and EAT such as selling expenses, administrative expenses, research and development expense, operating expenses and other financial expenses, however, major variable that was leading the huge fall was revenue.

Table 4.13: Percentage change of chosen variables 2008- 2009

Variable	EAT	EBIT	Revenue	Assets	Equity
% Δ from 2008 to 2009	-155.42%	-286.99%	-19.85%	-2.57%	-2.76%

Source: own elaboration based on annual report 2009

2009- 2010

Daimler started to see the light at the end of the tunnel in 2010 where the company started slowly getting out of the problems. In 2010 Daimler's change of the EVA equalled to +6.8 billion euros. The up growth is caused by two major components return on sales and asset turnover. The influences amounted to 10 005.48 for ROS and 474.58 for asset turnover (table 4.14). The highest negative impact was reported by interest and tax burden (-2974.68). Drop of interest and tax burden

was caused by increase in tax liabilities compared to 2009 when Daimler did not have to pay any taxes due to negative profit.

Table 4.14: Pyramidal decomposition of EVA between 2009 and 2010 - results

Component ratio	Symbol	Influence	Ranking
Equity	E	-367.32	5
Cost of equity	R_E	0.00	3
Interest and tax burden	EAT/EBIT	-2974.68	6
Financial leverage	A/E	-310.14	4
Return on sales	EBIT/Rev	10005.48	1
Asset turnover	Rev/A	474.58	2
Economic value added	**EVA**	**6827.92**	

Source: own elaboration based on annual report 2010

By looking at table 4.15 we see that all the variables went up. Assets, revenue and equity increased by 5.44%, 24%, and 19.2% in 2010 compared to 2009. EAT and EBIT skyrocketed by 580% and 277 %, see table 4.15. Such significant gains at EAT and EBIT are results of revenue growth while administrative expenses, and research and development (R&D) expenses remained at the same levels. Daimler also improved its income from financial operations and lowered operating expenses. Reasonably income tax expense rose.

Table 4.15: Percentage change of chosen variables 2009- 2010

Variable	EAT	EBIT	Revenue	Assets	Equity
% Δ from 2009 to 2010	580.77%	276.78%	23.87%	5.44%	19.25%

Source: own elaboration based on annual report 2010

2012- 2013

Between 2012 and 2013 Daimler reported gain of the EVA of 1.9 billion euros. The factors with the highest positive impact on overall EVA are first return on sales with influence of 1475.14, and second interest and tax burden with influence of 511.02 (table 4.16). The most negative impact on the change in EVA has financial leverage – influence of -486.82

Table 4.16: Pyramidal decomposition of EVA between 2012 and 2013 - results

Component ratio	**Symbol**	**Influence**	**Ranking**
Equity	E	415.87	3
Cost of equity	R_E	0.00	4
Interest and tax burden	EAT/EBIT	511.02	2
Financial leverage	A/E	-486.82	6
Return on sales	EBIT/Rev	1475.14	1
Asset turnover	Rev/A	-12.85	5
Economic value added	**EVA**	**1902.36**	

Source: own elaboration based on annual report 2013

Gains of EAT and EBIT amounted to 34%, and 25.5% respectively (table 4.17). Both components are directly responsible for increase of return on sales in first instance and increase of the EVA in second instance. Revenue, assets and equity also grew by 3.2%, 3.4% and 10.25% where equity reported the highest gain.

Table 4.17: Percentage change of chosen variables 2012- 2013

Variable	**EAT**	**EBIT**	**Revenue**	**Assets**	**Equity**
% Δ from 2012 to 2013	34.26%	25.49%	3.22%	3.40%	10.25%

Source: own elaboration based on annual report 2013

2013- 2014

Between 2013 and 2014 Daimler experienced decrease of the EVA by approximately 1.5 billion euros (table 4.18). The most significant impact on Δ EVA have first interest and tax burden and second traditionally return on sales with influences of -1382.42, and -819.16 respectively. The most positive impact on the change of EVA has financial leverage.

Table 4.18: Pyramidal decomposition of EVA between 2013 and 2014 - results

Component ratio	Symbol	Influence	Ranking
Equity	E	124.91	2
Cost of equity	R_E	0.00	3
Interest and tax burden	EAT/EBIT	-1382.42	6
Financial leverage	A/E	725.58	1
Return on sales	EBIT/Rev	-819.16	5
Asset turnover	Rev/A	-176.59	4
Economic value added	**EVA**	**-1527.68**	

Source: own elaboration based on annual report 2014

From table 4.19 we see the highest year to year difference (in %) is made by drop of EAT (-16.4%), revenue increased by around 10%, and assets increased by 12.5%. EBIT remained almost the same and equity went up by 2.8%. Even though, revenue rose by solid 10 % due to similar increase of costs of sales EBIT was pretty much not affected. However, net profit cut down by -16.4% which was the result of increase in income taxes. In 2014 Daimler had to pay double on the income taxes which amounted to around € 2.9 billion compared to € 1.4 billion in 2013.

Table 4.19: Percentage change of chosen variables 2013- 2014

Variable	EAT	EBIT	Revenue	Assets	Equity
% Δ from 2013 to 2014	-16.40%	-0.63%	10.08%	12.53%	2.82%

Source: own elaboration based on annual report 2014

Conclusion of the decomposition

To conclude Daimler had to fight with consequences of global financial crisis in 2008 and 2009. Daimler lost economic value of around € 2.5 billion in 2008 and next around € 4 billion in 2009 which in total sums up to total decrease of € -6.5 billion in two years (from 2007 to 2009). Pyramidal decomposition showed the key indicators that had the greatest impact on the drop of the economic value added (EVA). Table 4.20 indicates changes in EVA in given time periods. In time of the recession 2007 – 2008 and 2008 – 2009 the most important component was *return on sales*. In 2009 Daimler's EBIT dropped below zero, table 4.20. The fall of EVA in time of recession was a result of decline in global demand. Firms and consumers had less money so they were buying less and it caused Daimler's total revenue to shrink, therefore ROS was steadily falling. In 2010 Daimler signalized much better financial conditions due to improved global demand for all kinds of vehicles. Between 2009 and 2010 the EVA rose by approximately € 6.8 billion which was around the value of fall that Daimler faced between 2007 and 2009, table 4.20. Major and key components here were *return on sales* and improved *total revenue*. Next analysis showed that EVA grew by € 1.9 billion in 2013 traditionally mostly affected by *ROS* and for the first time interest and tax burden played important role. Between 2013 and 2014 the first and the highest factor was *interest and tax burden* that caused EVA to drop by approximately -1.5 billion euros between 2013 and 2014. Authorities doubled income taxes in 2014 and this led to notable weakening of Daimler's EVA.

Table 4.20: Key components and change of EVA

Time period	Δ EVA (€ million)	Key indicators (1st, 2nd)
2007-2008	-2513.29	ROS, R_E
2008-2009	-3985.76	ROS, Asset turnover
2009-2010	6827.92	ROS, Asset turnover
2012-2013	1902.36	ROS, EAT/EBIT
2013-2014	-1527.68	EAT/EBIT, ROS

Source: own elaboration based on annual reports

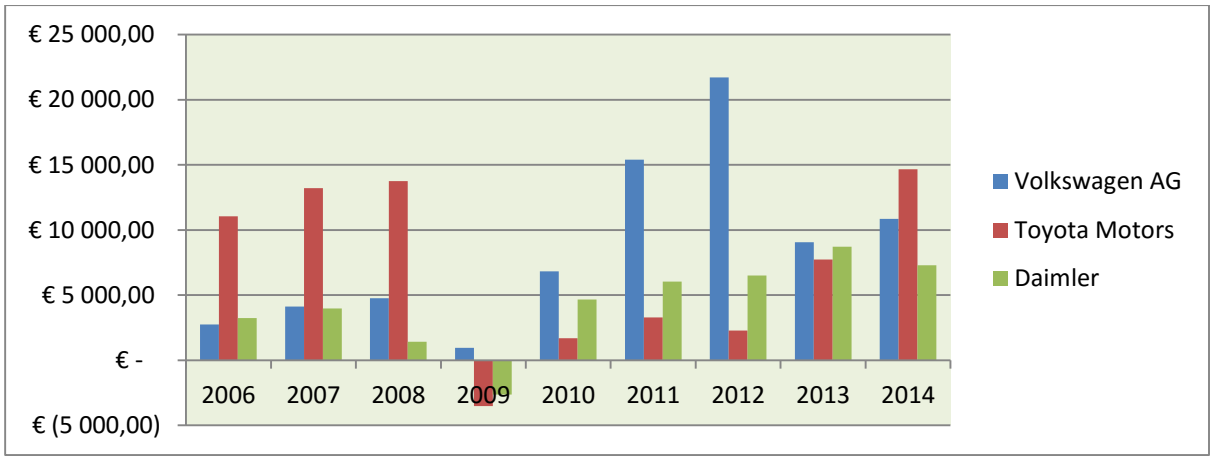
4.4. Comparison of the key indicators with the main competitors

We compare Daimler with two main competitors who topped Daimler's sales in 2014 Toyota Global Motors and Volkswagen Group. The key indicators based on Dluhošová (2014) are: net income, ROE, ROA, current ratio, quick ratio, inventory days, account payable days, days in receivables, debt-to-equity ratio, interest coverage, price to earnings ratio, and price to book ratio. She believes those are one of the most important indicators of firm's economic performance. At the end we conclude what aspects need to be improved and in what aspects Daimler outmatches its competitors.

Net income

Figure 4.16 demonstrates development of net income. For Toyota there was used exchange conversion where one Japanese yen equals to € 0.00804587 on 6th April 2016 based on actual exchange rate (http://www.xe.com/). From 2006 to 2008 Toyota who reached the highest net income. In 2009 when the crisis stroke only Volkswagen was able to remain in positive numbers while Toyota and Daimler experienced negative net income. From 2010 to 2013 it was Volkswagen who reported the highest net income followed first by Daimler and then Toyota that was negatively affected by economic crisis. In 2014 Toyota came back to the top followed by its two competitors.

Figure 4.16: Development of net income (2006 – 2014)



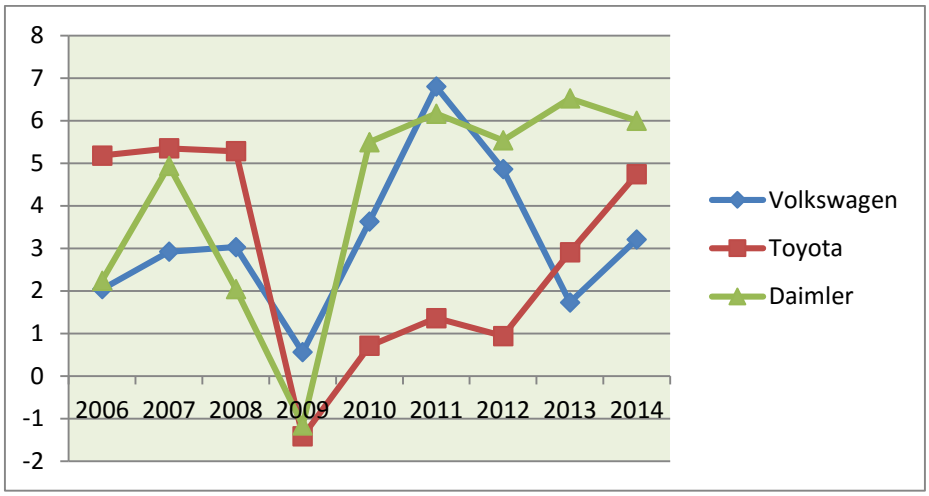
Source: own elaboration based on annual reports

Return on assets

As we can see in figure 4.17 from 2006 to 2008 Toyota reported the highest ROA. In 2009 all three competitors were hit by the economic crisis. After the crisis in 2010 there is Daimler who

reported very healthy return on assets which was better than its competitors in 2010, 2012, 2013 and 2014. Daimler outmatched its competitors regarding ROA in last three years.

Figure 4.17: Development of ROA (2006 – 2014)

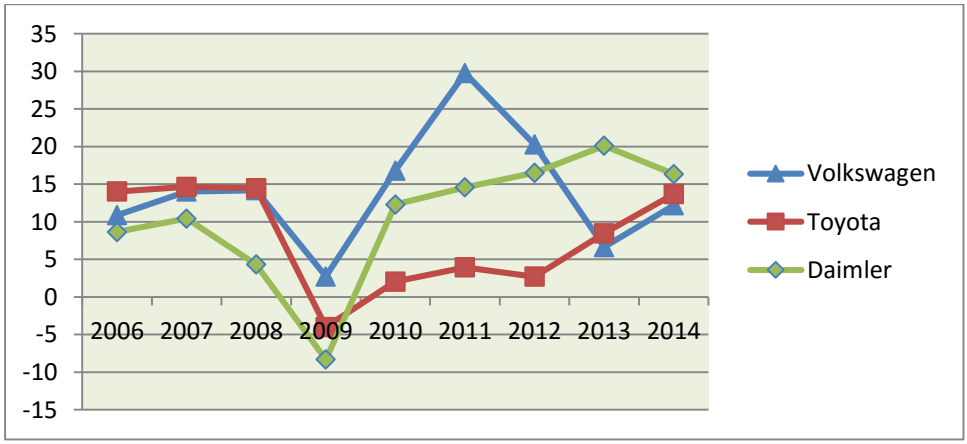


Source: own elaboration based on annual reports

Return on equity

As far as ROE, figure 4.18, Toyota was beating its competitors from 2006 to 2008 closely followed by Volkswagen. In next four years from 2009 to 2012 the industry leadership was attained by Volkswagen while Daimler reported the highest ROE in 2013 and 2014.

Figure 4.18: Development of ROE (2006 – 2014)

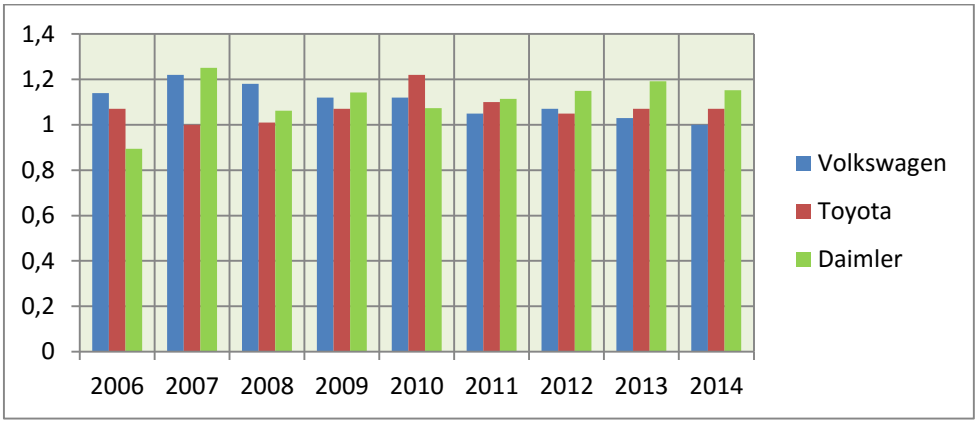


Source: own elaboration based on annual reports

Current ratio

As far as liquidity goes, figure 4.19, Daimler is the most liquid in six out of nine years that are being evaluated which makes Daimler significantly better regarding this indicator than its competitors. In 2006 and 2008 Volkswagen was the most liquid and in 2010 it was Toyota the most liquid company.

Figure 4.19: Development of current ratio (2006 – 2014)

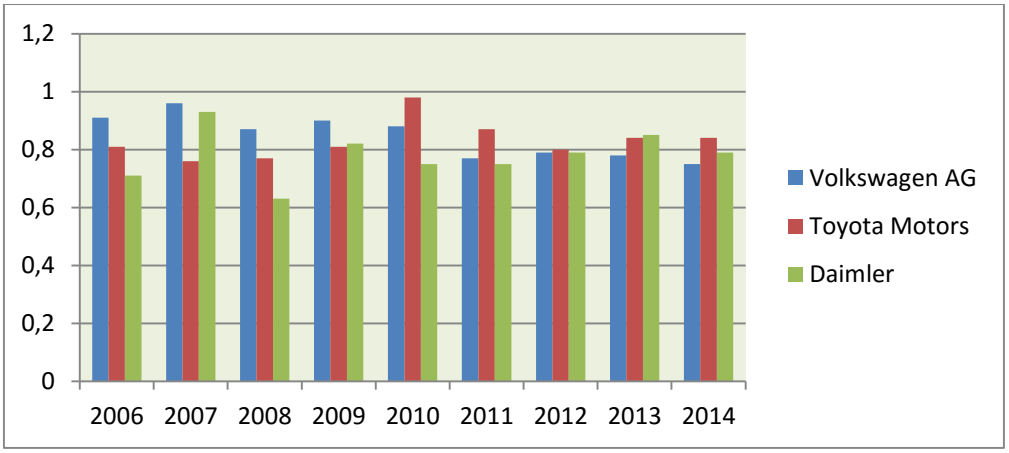


Source: own elaboration based on annual reports

Quick ratio

By looking at the figure 4.20 we see that Daimler disposes by the lowest quick ratio in 2006, 2008, 2010 and 2011. All three companies' quick ratio ranges from 0.8 to around 0.9 which represents healthy conditions. Literature says that optimal values are around 1.0. However, in automobile industry quick ratio around 0.8 seems to work better for the corporations.

Figure 4.20: Development of quick ratio (2006 – 2014)

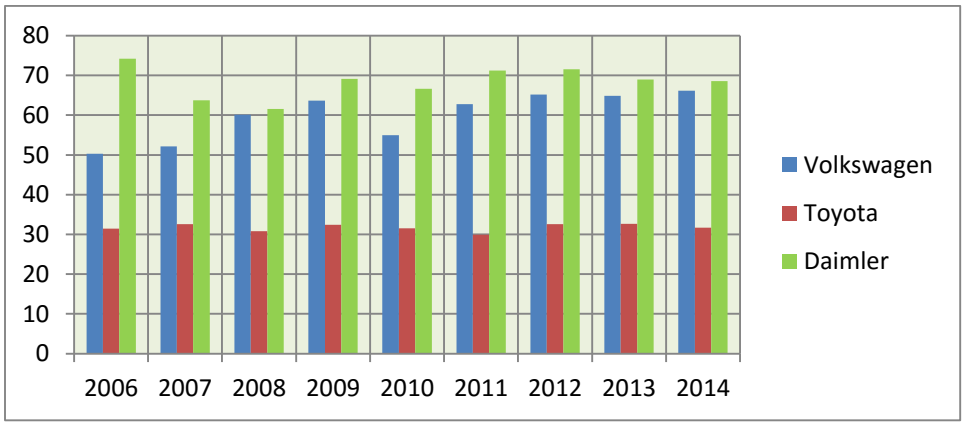


Source: own elaboration based on annual reports

Inventory days

Days in inventory are the highest for Daimler every single year from 2006 to 2014 while in last four years are days in inventory stable around 70 days. Toyota keeps traditionally level of inventory days very low at around 30 days due to Six Sigma, kaizen, and top quality management. Volkswagen's days in inventory move from 50 to around 60 days, figure 4.21. The main reason for Daimler to have such high inventory days is type of products Daimler produces. It is mostly luxury cars Mercedes Benz, Daimler Trucks or Daimler Buses. Therefore, it is justifiable that Daimler possessed of the highest days in inventory.

Figure 4.21: Development of inventory days (2006 - 2014)

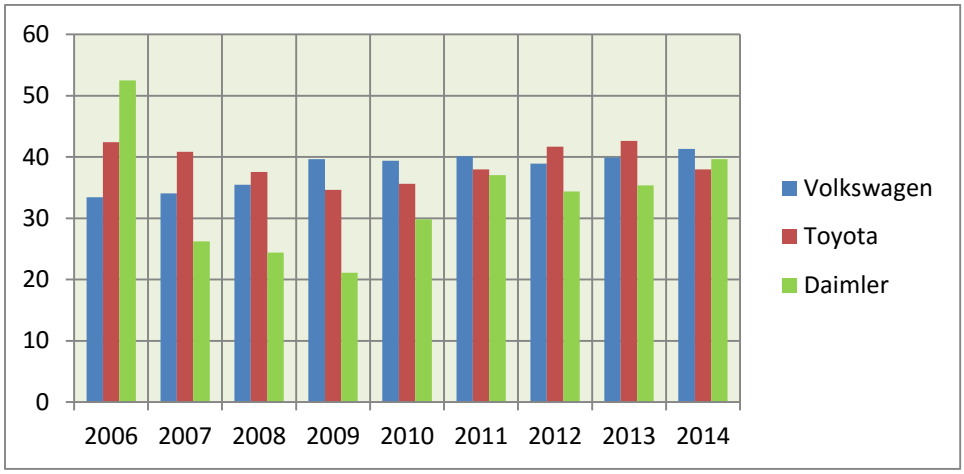


Source: own elaboration based on annual reports

Account payable days

As far as payable days goes it was Daimler in 2006 who took the most time to pay its accounts payable, figure 4.22. After that between 2007 and 2013 it was Daimler that paid its obligations the fastest from around 20 days in 2009 to around 35 days 2013. In 2014 Daimler was beaten by Toyota who reported the lowest level of day payables.

Figure 4.22: Development of day payables outstanding (2006 – 2014)

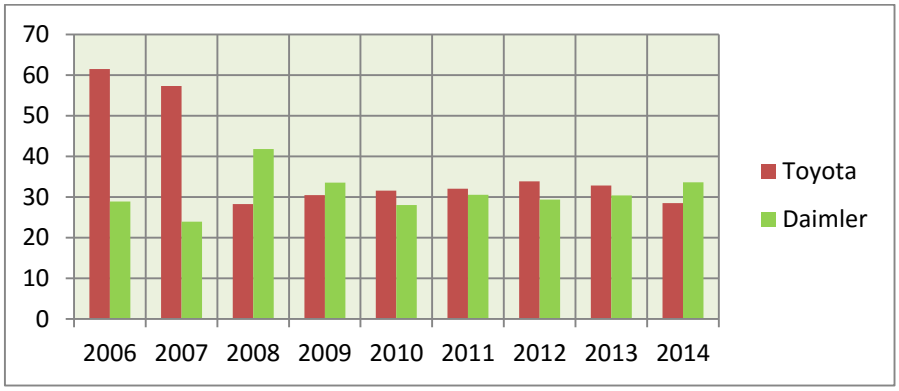


Source: own elaboration based on annual reports

Days in receivables

Next figure 4.23 demonstrates how well companies manage its receivables. Volkswagen unfortunately did not report any data regarding its receivables so we are comparing only Toyota and Daimler. In 2006 and 2007 Daimler's corporate customers paid their obligations significantly faster than Toyota's ones. From 2009 to 2014 both companies manage their receivables well and level of receivables was in both cases solid and stable. In 2008 Daimler had to wait for the receivables to be paid little longer – over 40 days. From 2010 to 2013 Daimler's customers were more disciplined than Toyota's ones and in 2014 it was opposite.

Figure 4.23: Development of days in receivables between 2006 and 2014 (Toyota and Daimler)

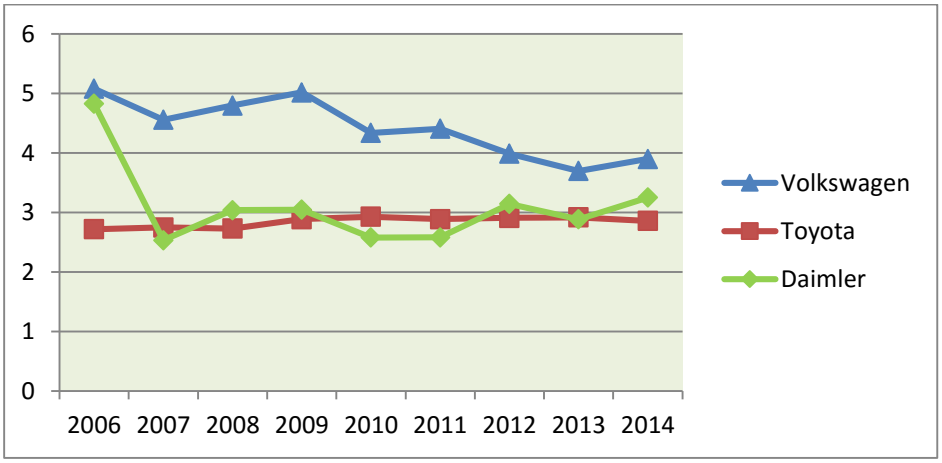


Source: own elaboration based on annual reports

Debt to equity ratio

The debt to equity ratio for Daimler and Toyota oscillates around 3.0 from 2007 to 2014 except year 2006 when Daimler's debt of equity ratio is more similar to the Volkswagen's one. Volkswagen has higher level of debt than its two competitors ranging from around 4.0 to 5.0 making the firm riskier.

Figure 4.24: Development of debt to equity ratio (2006 – 2014)

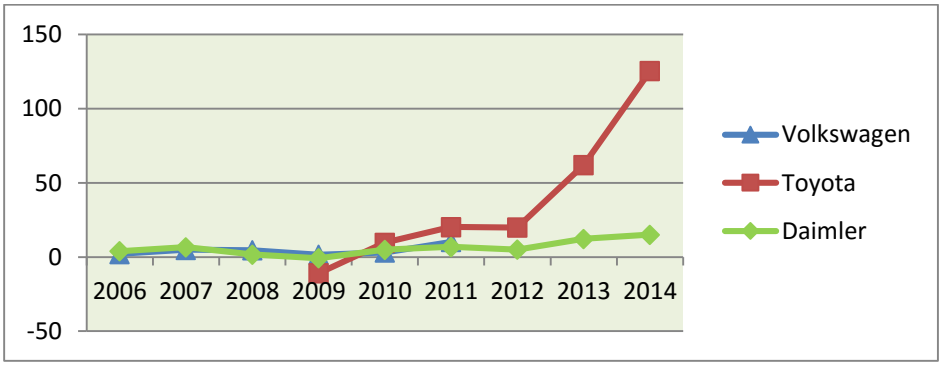


Source: own elaboration based on annual reports

Interest coverage

Regarding interest coverage, we were not able to find data for last three years for Volkswagen and for Toyota in time between 2006 and 2008, figure 4.24. From 2006 to 2011 Daimler and Volkswagen run off at the same levels. Daimler reported improvement regarding interest coverage in 2013 and 2014. However, Toyota is significantly beating Daimler from 2010 to 2014.

Figure 4.25: Development of interest coverage (2010 – 2014)

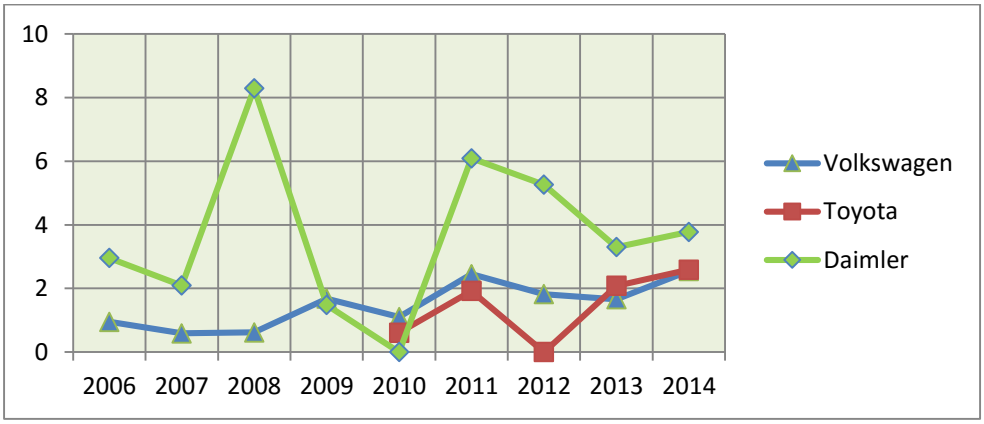


Source: own elaboration based on annual reports

Dividend yield

Regarding dividend yield Daimler is beating its competitors in seven out of nine years. Daimler experienced worse results than its competitors only in 2009 and 2010. Beside that Daimler provides the highest dividend yield for its stakeholders ranging from 2 % to 8 % in regular years apart from the Financial Crisis.

Figure 4.26: Development of dividend yield (%) (2006 – 2014)

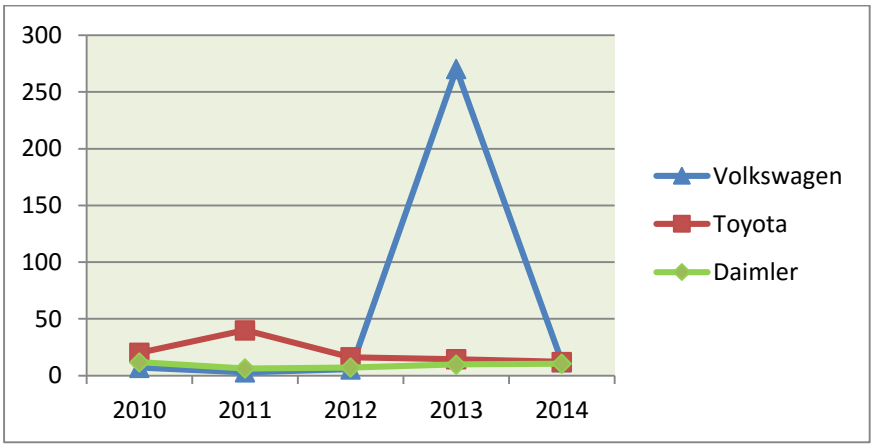


Source: own elaboration based on annual reports

Price to earnings ratio

As we can see (figure 4.26) Toyota reported the highest P/E from 2010 to 2012. In 2013 Volkswagen beat both competitors with P/E around 270. Daimler seems to be relatively easy to afford considering the price and earnings of the company.

Figure 4.27: Development of P/E ratio (2010 – 2014)

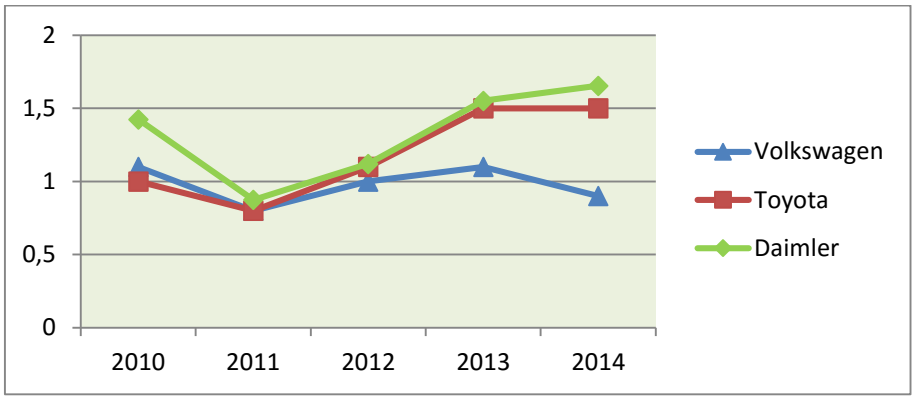


Source: own elaboration based on annual reports

Price to book ratio

Daimler reported the highest price to book value in all given years which can mean that the stocks of the company are relatively more expensive than the competitors' ones, figure 4.27. Price to book value ratio lower than one can indicate undervalued company whether ratios greater than one usually indicate opposite – overvalued company. However, the rising trend in time is a good sign of future growth prospects.

Figure 4.28: Development of P/B ratio (2010 – 2014)



Source: own elaboration based on annual reports

4.4.1. Conclusion of the comparison

Based on analysis and comparison of thirteen key indicators we conclude that Daimler excels in some indicators. On the other hand, there are aspects for Daimler that need to be improved in order to become more efficient and better. It is important to keep in mind that Daimler is with the high-end customer segment, Daimler Trucks, Vans and Buses different company than Volkswagen AG or Toyota Motors. Nevertheless, comparison brought the results that are further commented.

First, let's have a look at the aspects Daimler excels in. Daimler surpassed its competitors in return on assets, current ratio, day receivables outstanding and dividend yield in percentage (ranked number one in table 4.21).

Daimler significantly outmatches its competitors regarding return on assets even though the firm does not generate as much of EBIT as its competition. Main reason for that is appropriate structure of assets. Daimler holds only assets that are necessary for the production which gives Daimler great advantage.

The analysis shows that Daimler is more liquid than its competitors (greater current ratio). Daimler holds the current assets low as well as current liabilities which consist of the interest payments,

tax liabilities, payables, etc. Keeping all different liabilities down is a sign of good management practice that thoroughly deals with all obligations.

Next great indicator refers to dividend yield. Daimler is not afraid of splitting up its profits with stakeholders even though they are not as high as competitors' ones. Daimler gives out the greatest dividend yield and from 2010 the dividend yield steadily grows. This fact also makes Daimler to consider for long term investment.

Daimler did also well as far as day receivables outstanding go which basically says that Daimler was able to manage its outstanding debt. In other words, corporate customers and other customers of Daimler are disciplined regarding their obligations and pay on time. This aspect has direct impact on current assets and therefore current ratio.

The aspects where Daimler was ranked third and therefore is not doing as good are net income, quick ratio, days in inventory, day payables outstanding, and price to book ratio.

Daimler did not make as much net profit as its competitors. Daimler was making usually half what the best rival in given year which is not bad but there is lot of room for improvement. Net profit (earnings after taxes) is affected by many variables such as total revenue, cost of sales, administrative expenses, selling expenses, research and development costs, interest expenses, taxes and so on. After cost of goods sold the major aspects that keep net income quite low are selling expenses and R&D investments. Other variables can be neglected. That is why Daimler should focus on either increasing the revenue or lowering selling and administrative expenses while maintaining or even increasing R&D expenses due to its importance.

Next aspect for Daimler to work on is days in inventory. Toyota obviously benefits from the Kaizen, Six Sigma and total quality management by lowering days in inventory to absolute minimum. Volkswagen's inventory cycle is usually by 10 days in average shorter than Daimler's. Daimler should therefore think of shrinking inventory days. We are not suggesting Daimler to try to level up with Volkswagen or Toyota. Just few days (one or two) could bring significant results for the company of that size (figure 4.21).

Regarding quick ratio, the difference between Toyota, Volkswagen and Daimler is just few decimal points which we decided not to consider as a problematic area.

Day payables outstanding for Daimler could be improved. It is advised to increase day payables, in other words to wait with the payments to its suppliers so the company has more cash on hand

and therefore the risk of taking short term loans and being insolvent shrinks. However, the coin has two sides. Paying off its obligations faster than receiving the cash for outstanding debt could cause some solvency issues. On the other hand, the suppliers are satisfied with getting the cash fast that it creates very positive relationships between suppliers and Daimler. Furthermore, by paying the liabilities faster Daimler lowers current liabilities which have positive impact on total current ratio thus overall liquidity.

Daimler's price to book ratio moves higher than the competitors' between 2011– 2014. It says that the current market price for the stock of Daimler could be overvalued compared to stocks of Toyota and Volkswagen. Recommended value ranges below 1.0. Daimler's stock price at the end of 2014 amounted to € 68.97 per share.

Table 4.21: Final ranking of the comparison results

Indicator	Daimler	Toyota	Volkswagen
Net income	3	2	1
Return on assets	1	2	3
Return on equity	2	2	2
Current ratio	1	3	2
Quick ratio	3	2	1
Days in inventory	3	1	2
Day payables outstanding	3	1	1
Day receivables outstanding	1	2	-
Debt to equity ratio	2	1	3
Interest coverage	2	1	3
Dividend yield (%)	1	3	2
Price to earnings ratio	2	1	3
Price to book ratio	3	2	1

Source: own elaboration based on annual reports

4.4.2. Technique TOPSIS

Based on multiple criteria decision making model called TOPSIS, see chapter 2.4 for theoretical background, we made comparison of Daimler and its competitors in 2014. We composed the model based on variables from Z-score model and credibility indicator index both mentioned earlier in the thesis, section 2.1.5 and 2.1.6. The variables used for the computation are marked as follows and stand for:

X1…Net working capital/ Assets,

X2…Retained earnings/ Assets,

X3…EBIT/ Assets,

X5…Revenue/ Assets,

Y1…Cash flow/ Total liabilities,

Y2…Current assets/ Total liabilities,

Y4…EBIT/ Revenue,

Y5…Inventories/ Revenue.

We had to adjust the variables because two variables were the same for Z-score as well as for credibility indicator index. Thus, we removed: Y3 (EBIT/ Assets) and Y6 (Revenue/ Assets). There was another problem with variable equity to total liabilities (X4). It is very difficult to determine whether the higher ratio means better performance or whether it is opposite. The best is to find ideal level of equity to total liabilities which would be difficult to determine, so we removed that variable too. In the next step we computed the weights for individual variables based on weights from two models. We took the individual weights from the model and divided the number by sum of all weights which gave us weights for each criterion (X1 – Y5).

Table 4.22: Input data for Daimler, Toyota, and Volkswagen (2014)

	X1	X2	X3	X5	Y1	Y2	Y4	Y5
Weights	0.120	0.140	0.385	0.052	0.066	0.004	0.220	0.013
Daimler	0.054	0.150	0.057	0.685	0.0666	1.3074	0.0567	0.1607
Toyota	0.025	0.341	0.059	0.587	0.078	1.580	0.100	0.078
Volkswagen	0.002	0.323	0.067	0.920	0.071	0.843	0.073	0.155

Source: own elaboration based on Tzeng and Huang (2011)

Individual variables (X1 – Y5) are calculated based on formulas (2.1.18), (2.1.20), see table 4.22. for three compared companies. We went through the process of finding out the distance from ideal variant and came up with following results.

Table 4.23: Results of the TOPSIS Analysis for 2014 (weights based on Z-score and credibility indicator index models)

Daimler	0.269
Toyota	0.385
Volkswagen	0.811

Source: own elaboration based on Tzeng and Huang (2011)

In 2014 Volkswagen managed to achieve best results regarding chosen variables and TOPSIS analysis. The firm reported 0.811 which is considered great value due to its closeness to 1.0 that is absolute maximum. Volkswagen significantly outmatched its competitor in 2014. Second was based on the TOPSIS analysis Toyota with ratio 0.385. The last one was Daimler with value of 0.27.

It is important to emphasize that weights play very important role here and individual variables in which Daimler beat its competitors were not weighted as high as the ones where he was outmatched. As a result of weights in Daimler's disadvantage Daimler ended up third. For the comparison we added second TOPSIS analysis, where we weighted all variables equally thus all of them are equally important. The change is enormous, see table 4.24

Table 4.24: Results of the TOPSIS Analysis for 2014 (weights are all equal: 0.125)

Daimler	0.602
Toyota	0.790
Volkswagen	0.213

Source: own elaboration based on Tzeng and Huang (2011)

As a result of change in weights to 0.125 for each factor Daimler came in second behind Toyota Motors and Volkswagen ended up third with 0.213. Daimler reported very solid figure 0.602 while Toyota outmatched its competitors in this particular TOPSIS analysis with the highest value of 0.79.

Both analyses radically changed based on chosen weights. In the first TOPSIS investigation Volkswagen beat Toyota (2^{nd}) as well as Daimler (3^{rd}). From the second measurement however Toyota came out first, Daimler second and Volkswagen dropped to the third position from excellent value very close to 1, thus, 0.811 to very low 0.213. Daimler reported first low 0.27 while in the second analysis reached 0.6. Toyota's results appeared to be the most stable regardless weights ranging from solid 0.385 to great 0.79. Both TOPSIS analyses can be found in annexes under number 7 and 8.

4.5. Final assessment

Overall Daimler Group is a great automotive company that meets the needs of high end middle class, and corporate customers. Based on the analysis above, we see that even though Daimler experienced great fall during 2008 and 2009, the firm was able to get out of the financial crisis stronger and between 2010 and 2014 company prospered.

Based on the financial analysis, Daimler maintained a very high liquidity. Current and acid test ratios reported healthy conditions in the given time period of 2006 – 2014. Profitability indicators, such as ROE and ROA, are mainly affected by nominator which is either EAT or EBIT. Regarding assets and equity management, Daimler does great job which enables the company to stay efficient in production. Regarding activity, we recommend Daimler to focus on days in inventory and day sales outstanding. If Daimler could lower the days in inventory, it would have great impact on its overall profitability. Also, Daimler should manage its receivables better. Customers paid off later their obligations to Daimler than the company paid its payables, which could have later caused some short term solvency issues. Debt ratio was pretty stable and interest coverage had increased.

EVA entity revealed that Daimler, between 2011 and 2014, added significant economic value for its stakeholders ranging from € 12.6 billion to € 14.4 billion. MVA was greatly influenced by the low stock market price in 2011. Thus, Daimler's MVA amounted to € -5 billion. From 2012 to 2014, the stock price and therefore MVA rapidly rose. P/E ratio stayed relatively low after 2009 due to the debt crisis in Eurozone. Therefore, it was quite favourable to invest in Daimler's shares between 2010 and 2013. P/B ratios with rising trend reported that Daimler's stocks might be little more expensive than from the other automotive companies.

Based on decomposition of EVA equity, we found out the ROS is the most important component in change of the EVA in four out of five cases. We took a closer look at the financial crisis between 2007 and 2010 and the latest years 2012 - 2014. The return on sales was responsible for the double drop of the EVA that equalled to € 6.5 billion from 2007 to 2009, and also for the rapid increase of the EVA from 2009 to 2010 that amounted to € 6.8 billion. Components with the second highest influence were usually asset turnover or interest and tax burden; only in 2008 cost of equity was in effect. ROS was also the leading component in growth of the EVA from 2012 to 2013. Nevertheless, between 2013 and 2014 the EVA dropped and the leading indicator here was the interest and tax burden which indicated increase in income tax for Daimler Group. Based on the further decomposition of ROS, we suggest Daimler to focus on increasing the revenue or lowering

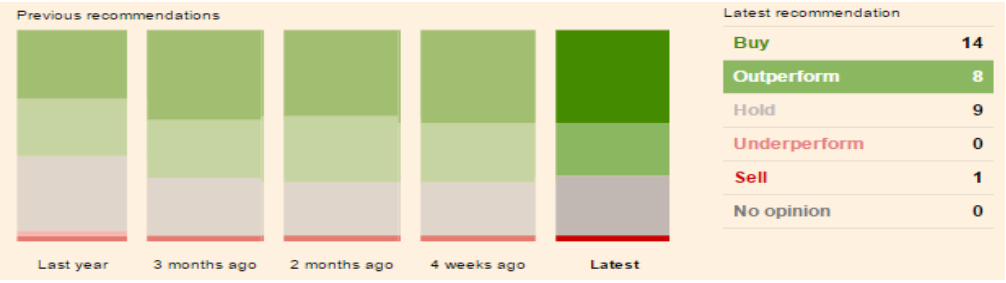
selling and administrative expenses while maintaining or even increasing research and development (R&D) expenses due to its importance. There is not much Daimler can do about income taxes. Increase of asset turnover also has a positive impact on change of EVA.

We also recommend Daimler to sustain its leadership position regarding liquidity, day receivables outstanding, and dividend yield. The room for improvement was found in days in inventory. Lowering the days in inventory by couple of days or even hours could make enormous impact on profits. Net income compared to Toyota and Volkswagen could be definitely increased. Entering the emerging markets could increase the total demand for Daimler's automobiles and taking some portion of the Toyota's and Volkswagen's market by innovation in self driving cars could also increase demand and thus revenue.

By conducting TOPSIS analysis for 2014, we were able to come up with single performance number for each company based on chosen criteria from bankruptcy models. By using weights from Z-score and the credibility indicator index, Daimler was ranked third with the lowest value of 0.29 behind Toyota (0.385) and Volkswagen (0.811). By adjusting weights to make all variables equally important, Daimler suddenly improved to second position with (0.602) behind Toyota (0.79) and ahead of Volkswagen (0.213).

Based on the price to book ratio, price of Daimler's stock might be little too expensive compared to stocks of Volkswagen and Toyota at the end of 2014. The price amounted to almost € 69. However, based on data analysis Daimler is a very reliable company with great dividend yield and revenue growth prospects. Financial analysts of financial times also expect Daimler's shares to grow, figure 4.29. Fourteen out of thirty-three experts believe that Daimler's stocks are undervalued and another eight suggest that the stock outperforms its current price.

Figure 4.29: Recommendations from 33 investment analysts



Source: Financial Times (2014)

5. Conclusion

The goal of the thesis was to evaluate financial performance of Daimler Group in the given time period between 2006 and 2014. There were three essential chapters. First one was devoted to theoretical background of chosen performance indicators, second included methodology and description of the company. Last one contained practical performance evaluation using chosen financial and economic methods.

First part gave theoretical base for the financial statement analysis, modern approaches to firm's performance valuation, decomposition of EVA and the TOPSIS analysis. Financial statement analysis introduced liquidity, profitability, activity and financial leverage measures. Further, there were two additional bankruptcy models included in this section. Under modern approaches to valuation we elaborated economic value added (EVA), market value added (MVA), market value ratios such as P/E ratio, price to cash flow ratio and P/B ratio. Furthermore, decomposition of EVA equity and TOPSIS analysis were explained in this chapter.

Second chapter was dedicated to methodology of the work and Daimler's detailed introduction. The chapter contained some information relating to automotive industry, introduction of Daimler Group, development of Daimler's stocks and its dividends, Daimler's strategy, its organizational structure, and SWOT analysis of Daimler Group.

Last part was devoted to practical application of chosen performance indicators in Daimler Group. The chapter included first financial statement analysis, second modern approaches to valuation, third, decomposition of the EVA equity, fourth, comparison of the key indicators with the biggest rivals Volkswagen Group and Toyota Global Motors, and final assessment. Comparison of the key indicators contained traditional ranking of the companies based on each factor and modern multiple-criterion analysis TOPSIS. Final assessment summed up and concluded all the analyses that were conducted.

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List of Abbreviations

A	Assets
β	Beta (lowercase)
CA	Current assets
CAPM	Capital Asset Pricing Model
Δ	Difference, or change (uppercase delta)
D/E	Debt-to- equity ratio
DAI.DE	Daimler's stocks
DAX	German stock index trading on the Frankfurt Stock Exchange
DII	Days in inventory
DPO	Day payables outstanding
DSO	Day sales outstanding
EAT	Earnings after taxes
EBIT	Earnings before interest, and taxes; net operating income
EBT	Earnings before taxes (after interest)
EPS	Earnings per share
EVA	Economic Value Added
Inv	Inventories
M/B	Market-to-book ratio
MVA	Market Value Added
MV_d	Market value of debt
MV_e	Market value of equity
NOA	Net operating assets
NOPAT	Net operating profit after taxes
NWC	Net working capital
P	Price of a share
P/E	Price/ earnings ratio
R_d	Cost of debt
R_E	Cost of equity
Rev	Revenue
ROA	Return on assets
ROE	Return on equity
RP	Retained profits
T, t	Tax rate
TL	Total liabilities
WACC	Weighted average cost of capital

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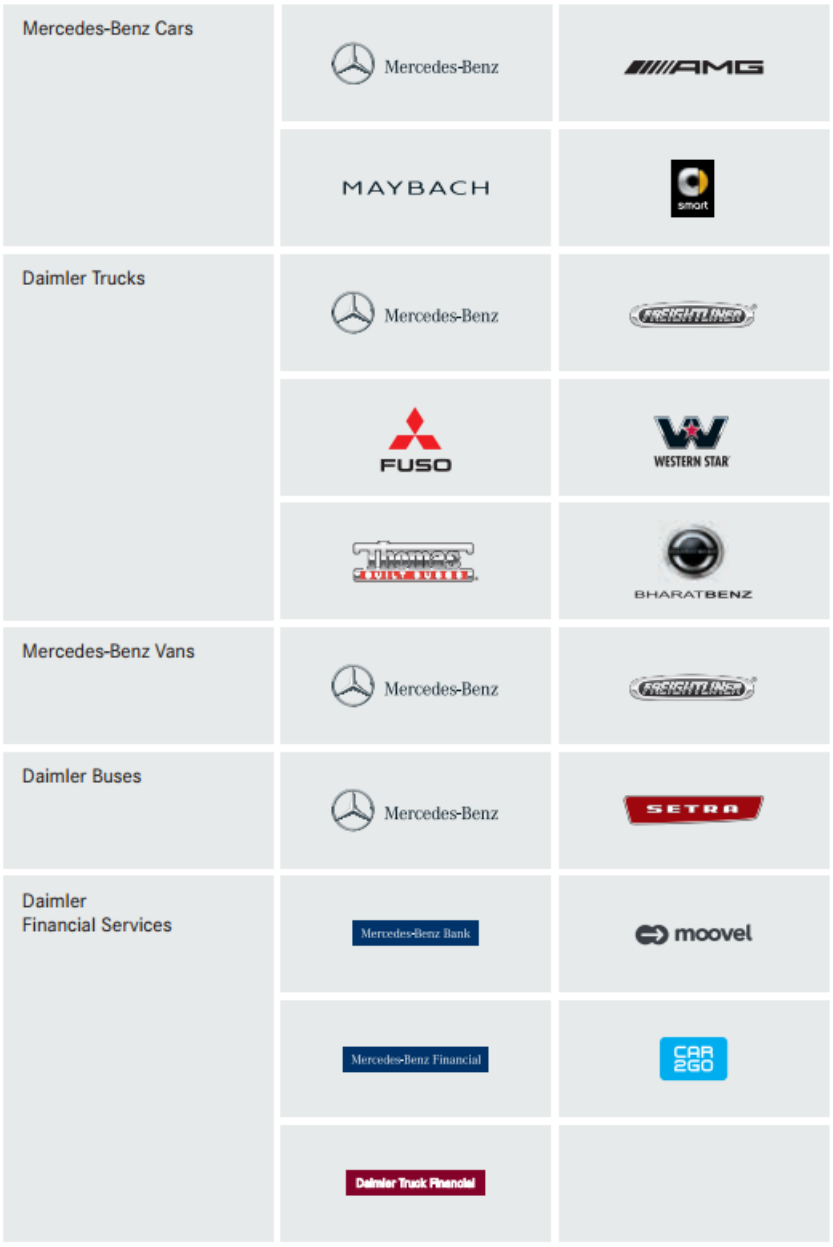
Petr Michnev

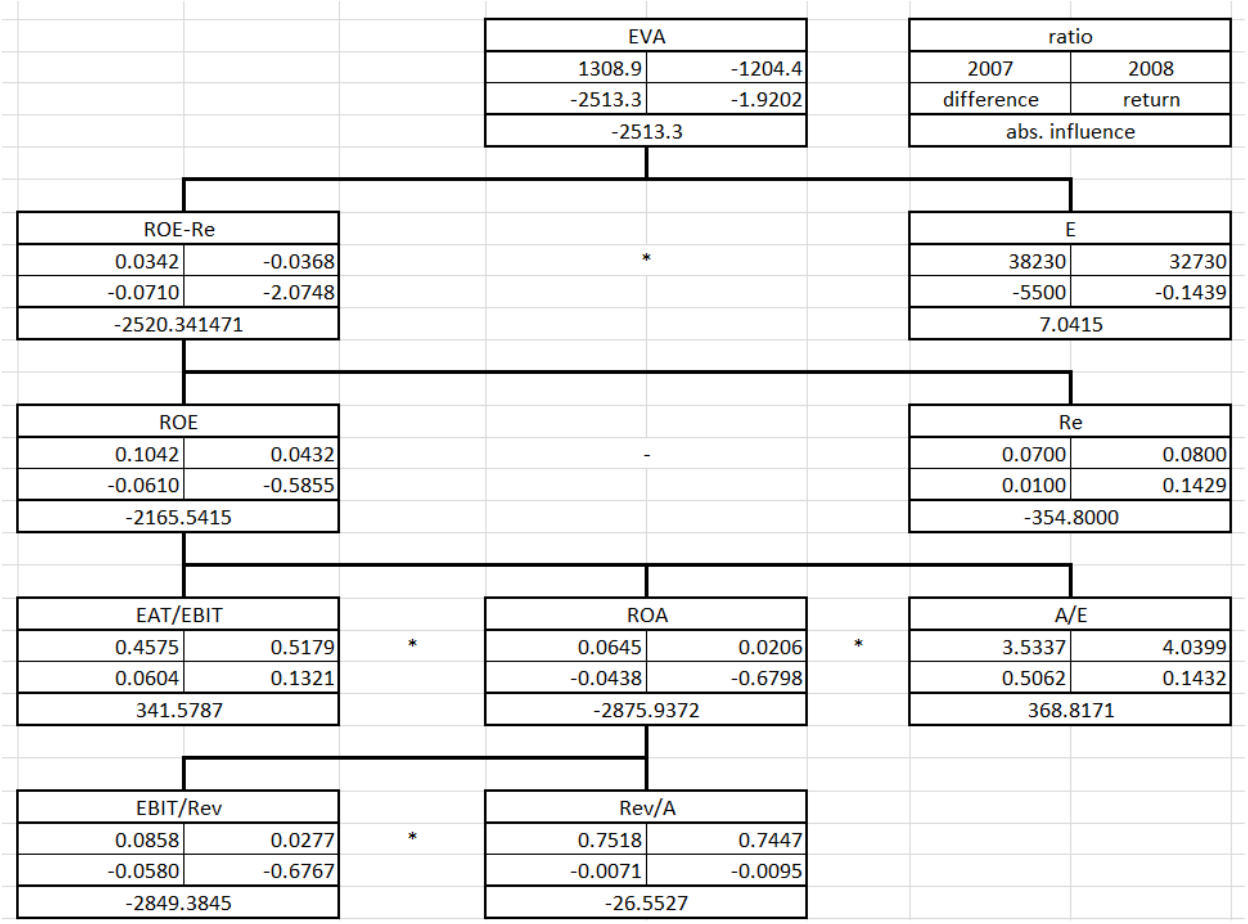
List of Annexes

Annexes

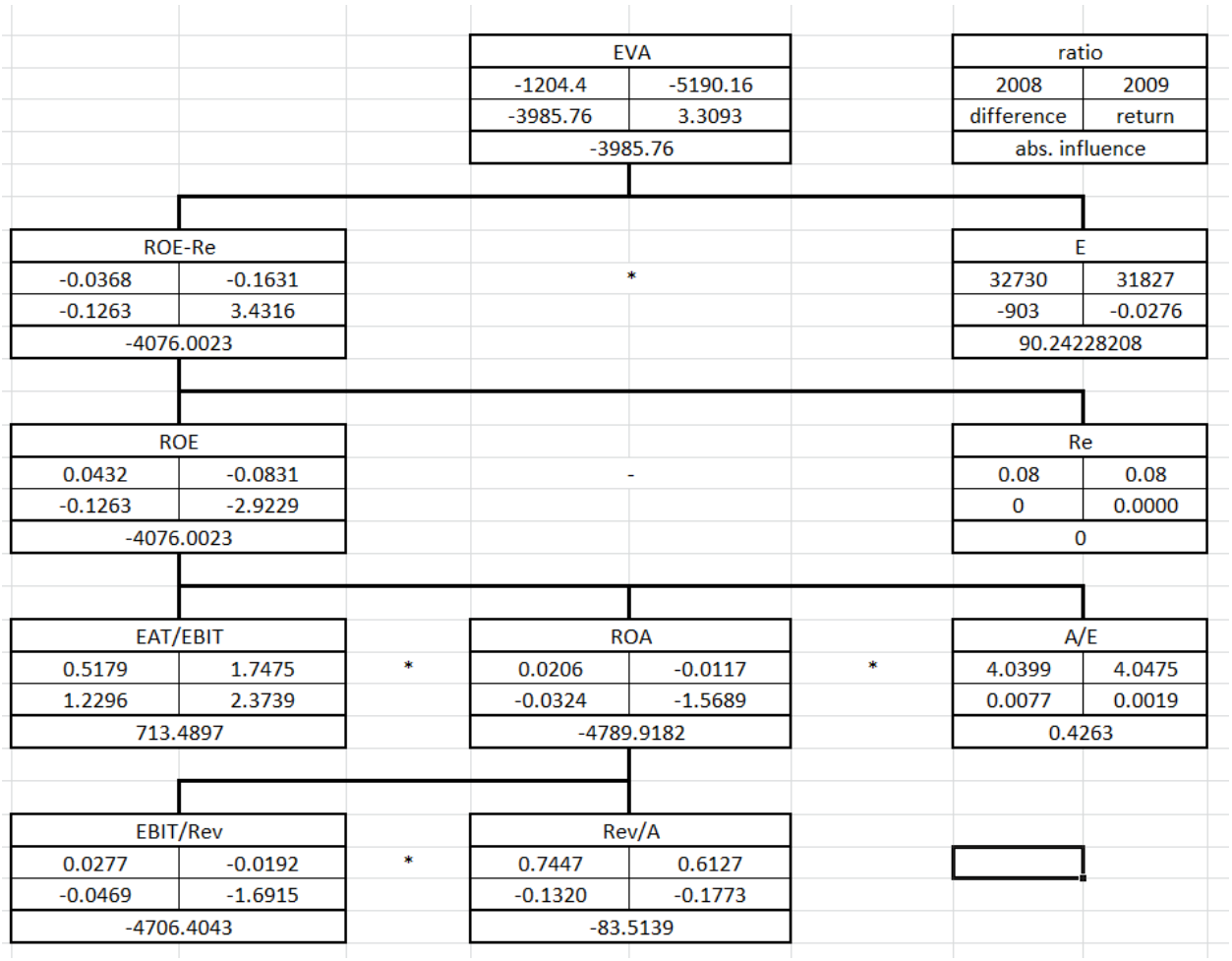
Annex 1: Graphical display of Daimler's divisions



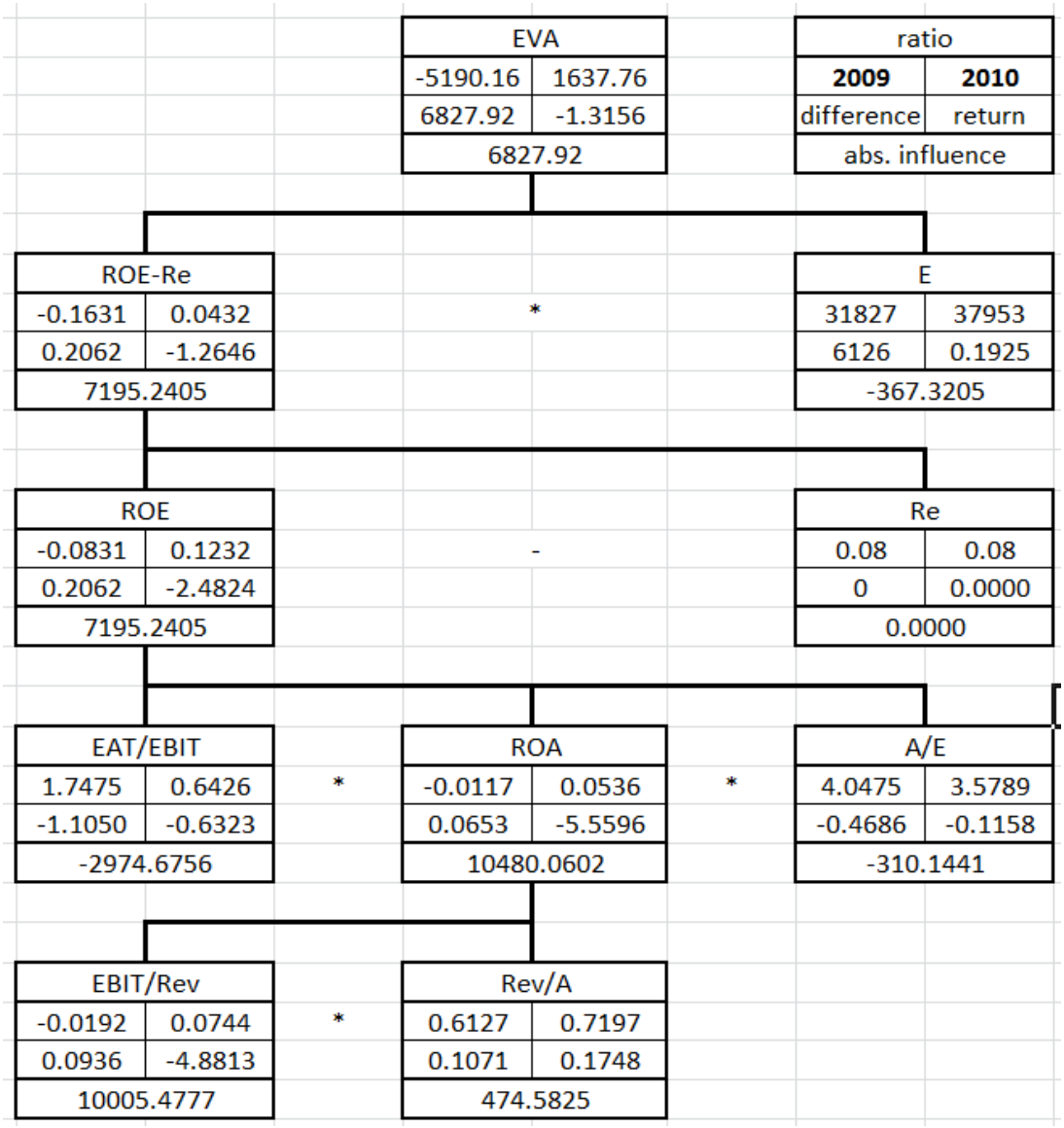
Annex 2: Pyramidal decomposition of EVA between 2007 and 2008



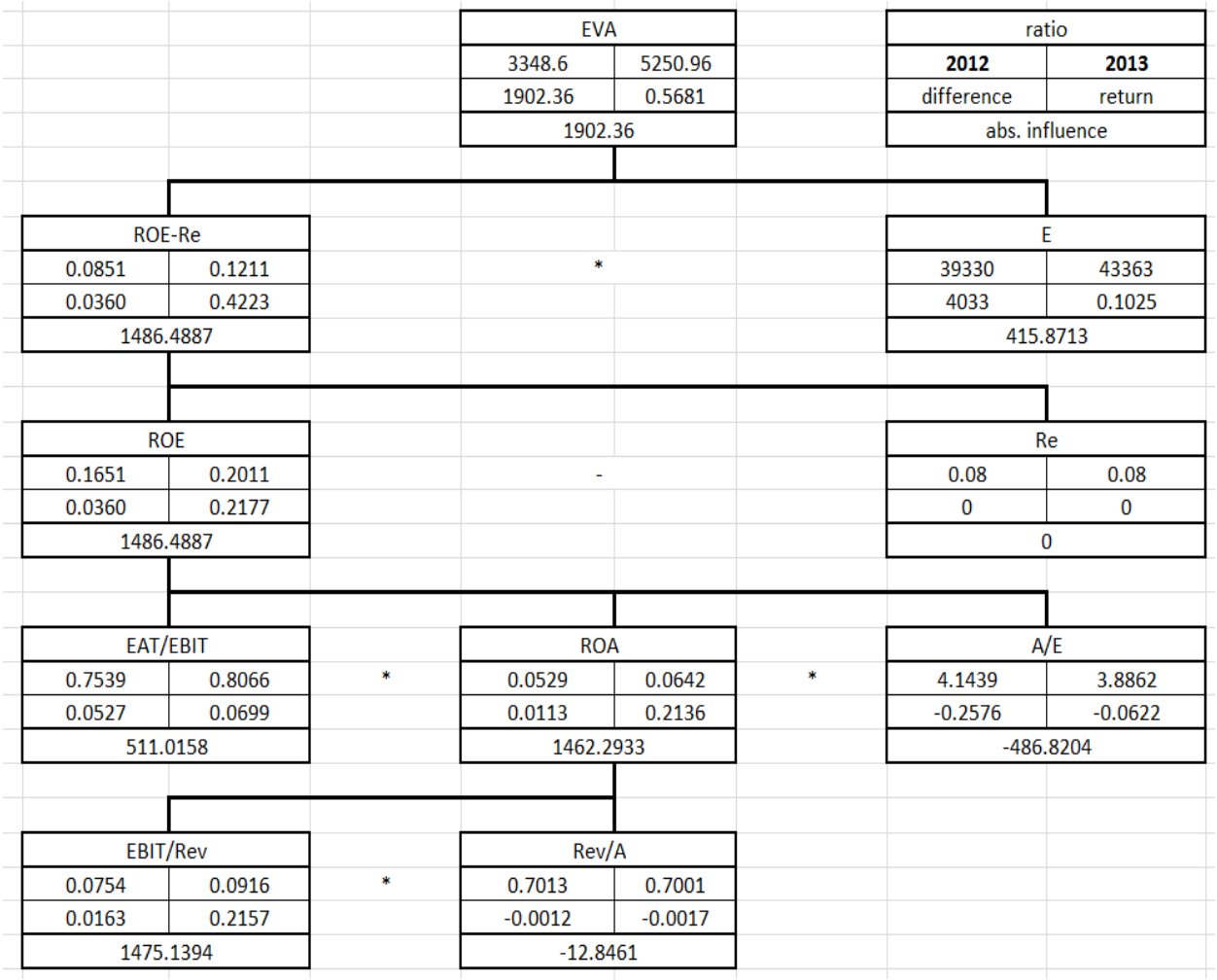
Annex 3: Pyramidal decomposition of EVA between 2008 and 2009



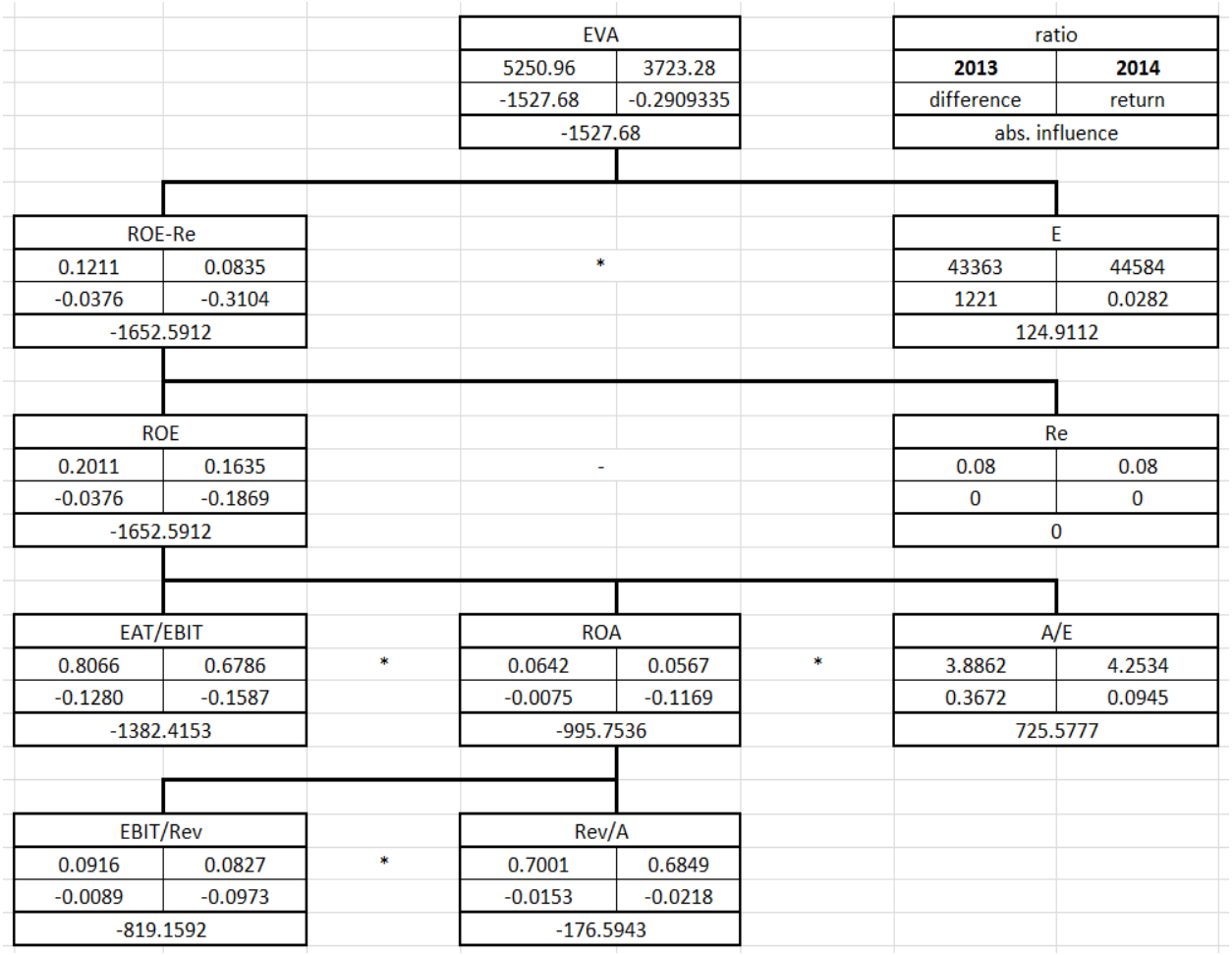
Annex 4: Pyramidal decomposition of EVA between 2009 and 2010



Annex 5: Pyramidal decomposition of EVA between 2012 and 2013



Annex 6: Pyramidal decomposition of EVA between 2013 and 2014



Annex 7: TOPSIS analysis with weights retrieved from Z-score and credibility indicator index

	X1	X2	X3	X5	Y1	Y2	Y4	Y5	
	NWC/A	RP/ A	EBIT/A	Rev/A	CF/TL	CA/TL	EBIT/Rev	Inv/Rev	
Weights	0.120	0.140	0.385	0.052	0.066	0.004	0.220	0.013	
Daimler	0.054	0.150	0.057	0.685	0.067	1.307	0.057	0.161	
Toyota	0.025	0.341	0.059	0.587	0.078	1.580	0.100	0.078	
Volkswagen	0.002	0.323	0.067	0.920	0.071	0.843	0.073	0.155	
	0.080	0.814	0.183	2.191	0.216	3.731	0.230	0.394	
rij	0.004	0.122	0.010	1.501	0.014	4.878	0.013	0.063	
	0.002	0.277	0.011	1.286	0.017	5.897	0.023	0.031	
	0.000	0.263	0.012	2.016	0.015	3.146	0.017	0.061	
wi*rij	0.001	0.017	0.004	0.078	0.001	0.017	0.003	0.001	
	0.000	0.039	0.004	0.067	0.001	0.021	0.005	0.000	
	0.000	0.037	0.005	0.105	0.001	0.011	0.004	0.001	
Hi=MAX(wi*ri)	0.001	0.039	0.005	0.105	0.001	0.021	0.005	0.001	
Di=MIN(wi*ri)	0.000	0.017	0.004	0.067	0.001	0.011	0.003	0.000	
									suma D+
D+	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	**0.035**
	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	**0.038**
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.010**
									Suma D-
D-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.013**
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.024**
	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	**0.043**

TOPSIS RESULTS	
Daimler	0.269
Toyota	0.385
Volkswagen	0.811

Annex 8: TOPSIS analysis with weights equalled to 0.125

	X1	X2	X3	X5	Y1	Y2	Y4	Y5	
	NWC/A	RP/A	EBIT/A	Rev/A	CF/TL	CA/TL	EBIT/Rev	Inv/Rev	
Weights	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	
Daimler	0.054	0.150	0.057	0.685	0.067	1.307	0.057	0.161	
Toyota	0.025	0.341	0.059	0.587	0.078	1.580	0.100	0.078	
Volkswagen	0.002	0.323	0.067	0.920	0.071	0.843	0.073	0.155	
	0.080	0.814	0.183	2.191	0.216	3.731	0.230	0.394	
rij	0.004	0.122	0.010	1.501	0.014	4.878	0.013	0.063	
	0.002	0.277	0.011	1.286	0.017	5.897	0.023	0.031	
	0.000	0.263	0.012	2.016	0.015	3.146	0.017	0.061	
wi*rij	0.001	0.015	0.001	0.188	0.002	0.610	0.002	0.008	
	0.000	0.035	0.001	0.161	0.002	0.737	0.003	0.004	
	0.000	0.033	0.002	0.252	0.002	0.393	0.002	0.008	
Hi=MAX(wi*ri	0.001	0.035	0.002	0.252	0.002	0.737	0.003	0.008	
Di=MIN(wi*ri	0.000	0.015	0.001	0.161	0.002	0.393	0.002	0.004	
									suma D+
D+	0.000	0.000	0.000	0.004	0.000	0.016	0.000	0.000	**0.144**
	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	**0.091**
	0.000	0.000	0.000	0.000	0.000	0.118	0.000	0.000	**0.344**
									Suma D-
D-	0.000	0.000	0.000	0.001	0.000	0.047	0.000	0.000	**0.218**
	0.000	0.000	0.000	0.000	0.000	0.118	0.000	0.000	**0.344**
	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	**0.093**

TOPSIS RESULTS	
Daimler	0.602
Toyota	0.790
Volkswagen	0.213